GEOGRAPHY,
RESOURCES & INDUSTRIES

February, 1944

FEB 1944

EDISON ELECTRIC INSTITUTE BULLETIN

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PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

November, 1942 and 1943

SOURCE AND DISPOSAL OF ENERGY—MONTH OF NOVEMBER

	1943	1942	%
GENERATION* (Net)			
By Fuel Burning Plants	13,446,579,000	10,725,800,000	+25.4
By Water Power Plants	6,041,885,000	5,733,300,000	+ 5.4
Total Generation	**19,488,464,000**	**16,459,100,000**	**+18.4**
Add—Net Imports Over International Boundaries	112,867,000	121,800,000	− 7.3
Less—Company Use	237,478,000	198,700,000	+19.5
Less—Energy Used by Producer	757,106,000	330,000,000	+129.4
Net Energy for Distribution	**18,606,747,000**	**16,052,200,000**	**+15.9**
Losses and Unaccounted for	2,102,604,000	1,955,351,000	+ 7.5
Sales to Ultimate Customers	**16,504,143,000**	**14,096,849,000**	**+17.1**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of November 30th			
Residential or Domestic	26,838,617**	26,622,919	+ 0.8
Rural (Distinct Rural Rates)	1,091,099	1,100,069	.....
Commercial or Industrial:			
Small Light and Power	4,162,491	4,232,813	− 1.7
Large Light and Power	147,869	150,856	
Other Customers	119,985	124,847	.....
Total Ultimate Customers	**32,360,061**	**32,231,504**	**+ 0.4**
KILOWATTHOUR SALES—During Month of November			
Residential or Domestic	2,474,104,000**	2,342,490,000	+ 5.6
Rural (Distinct Rural Rates)	203,779,000	197,372,000	+ 3.2
Commercial or Industrial:			
Small Light and Power	2,480,349,000	2,307,722,000	+ 7.5
Large Light and Power	9,528,192,000	7,937,974,000	+20.0
Street and Highway Lighting	198,692,000	196,814,000	+ 1.0
Other Public Authorities	917,088,000	402,029,000	+128.1
Railways and Railroads:			
Street and Interurban Railways	397,683,000	363,004,000	+ 9.6
Electrified Steam Railroads	221,011,000	205,201,000	+ 7.7
Interdepartmental	83,245,000	144,243,000	−42.3
Total to Ultimate Customers	**16,504,143,000**	**14,096,849,000**	**+17.1**
Revenue from Ultimate Customers	**$267,839,000****	**$246,749,300**	**+ 8.5**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—For the 12 Months Ended November 30th			
Kilowatthours per Customer	1,067	1,019	+ 4.7
Average Annual Bill	$38.84	$37.50	+ 3.6
Revenue per Kilowatthour	3.64¢	3.68¢	− 1.1

(*) By courtesy of the Federal Power Commission.
(**) Above data reflects results of bi-monthly billings on part of certain large companies.

Vol. 12, No. 2, EDISON ELECTRIC INSTITUTE BULLETIN; published monthly. Entered as second-class matter Aug. 17, 1933, at the post office at Philadelphia, Pa., under the act of March 3, 1879. Publication office, 56th and Chestnut Sts., Philadelphia, Pa. Editorial office, 420 Lexington Ave., New York, N. Y. Subscription rate $2.00 per year in the United States; $3.00 per year in foreign countries.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume 12 FEBRUARY, 1944 No. 2

Manpower Situation in the Electric Utilities

Observations on the findings in a recent survey by the Institute

By Alexander Maxwell

Director of Engineering, EEI

THE administrative letter issued to electric utilities on January 5, 1944, by the Director of the Office of War Utilities, reproduced herein on page 37, reflects the conclusions of the OWU as derived from its own observations and from a report rendered to it by a "task committee" which, in turn, was largely guided by the results of an extensive questionnaire which had been conducted by the Edison Electric Institute during the early autumn of 1943, at the request of OWU.

The outstanding features of Mr. Krug's letter are the reflection of a somewhat pessimistic estimate from the industry as to its manpower situation in the spring of 1944 and thereafter, and an intimation that there is still much that the industry can do for itself to improve the anticipated situation.

Nearly All Companies Anticipate Critical Situation

Concerning the present and future manpower situation, it may be noted that the percentage estimates in the OWU letter are based upon an inquiry in the basic questionnaire requesting over-all estimates of each respondent's manpower situation at the time of the response (October '43) in April '44 and in September '44, in four specified degrees, namely: "critical," "serious," "in balance," and "slight surplus."

These conditions were stated in the inquiry and were intended, of course, to provide for degrees of emphasis so that, for example, a respondent already in a serious situation would be able to say that he expected something still worse. There seem to be reasonable grounds for assuming that "critical" and "serious" both indicate uncomfortable situations, while the other two terms both indicate, for these times, a reasonably happy state of affairs. On this basis it is found that the whole industry was divided very nearly half and half (in October '43) between those who were either critical or serious, and those who were not. But the estimate for April '44 gives 83 per cent, or 5/6ths in the first category, while that for September '44 gives 86 per cent, or 7/8ths in the first category. Evidently most utilities expect the worst by April, and only a relatively slight increase in severity during the spring and summer. Since most of these estimates were made in October, 1943, it is apparent, if the estimates are correct, that the hurtful losses are occurring at this time or will occur in the immediate future.

Utilities Problems Not Comparable

As to the opportunities for self-help and the means to be utilized to that end, many different measures might be discussed but the three or four types of situations discussed in Mr. Krug's letter may provide a text, because each of these relates to *the special manpower problems of utilities* compared with problems of typical manufacturing industries for which the general pattern of the governmental manpower program appears to be designed. For example, there are two respects in which electric utilities might be deemed to be deficient according to the conventional standards of the WMC, if they should have occasion to apply for special relief. These are: the extent to which the 48-hour week has been utilized, and the extent of the employment of women to replace men in men's jobs. Ordinarily it may be expected that these remedies are to be exhausted before requests for other and special consideration shall be made. Since each of these apparently simple measures has definite limitations in the case of electric utilities it may be useful to discuss them.

Theoretically a change from 40 hours to 48 hours is expected to effect a proportionate, or 1/6th, release of manpower. This may be true in many manufacturing operations where the product is directly proportional to man-hours, but it is not true where this proportionality does not exist. In the most elementary case, for example, there is no definite relation between a shift worker's presence at his station in a generating plant during his shift, and the output of the plant for the same period. On the other hand, there are, of course, a lesser number of shifts to be manned for the longer period than for the shorter one.

Disparity Between Theoretical Savings and Actual Realization

The most marked disparity between theoretical savings and actual realization occurs, however, in non-shift work, and particularly in clerical and general office processes, and in the group of "service" occupations. For example, in most utilities, a cashier or teller sits behind a wicket to conduct cash transactions for the convenience of the public; his hours are adjusted to the habits of the public and ordinarily can be included readily in a 40-hour week. It is possible to extend his working week by eight hours, but nothing is gained directly thereby for the saving of manpower, because this individual is still required to be at his accustomed station at the accustomed times.

Much can be done, and is being done, in the way of combining tasks for the best economy of manpower; thus the teller might be and often is assigned some other task for his extra time thereby releasing part of the time of some other employee. So far as such measures are applicable they do result in correspond-

THE ANNUAL CONFERENCE EDISON ELECTRIC INSTITUTE
will be held at the
Waldorf-Astoria Hotel, New York
JUNE 6-7, 1944

ing economies of manpower; they are extensively utilized in all departments getting along with reduced personnel.

Specialization and Long Training Necessary

An inherent limitation exists in this respect for electric utilities compared with typical manufacturing industries, due to the great degree of subdivision of tasks and of the specialization characteristic of the utility industry. The total number of employees of electric utilities is small, when measured by either the amount of capital invested or the value of the product, compared with general industry, and this relatively small force is divided and sub-divided into a very large number of distinct occupational classifications. Most of these specialized occupations require relatively long periods of training, especially in the operating categories. This long training is not primarily for the development of manual skill, but for the development of the personal characteristics of alertness, steadiness and dependability which are indispensable on account of the nature of the electrical energy handled and the equipment controlled by the workers.

In practice, this specialization has the effect of limiting the realization of manpower savings from increased shift hours to an amount considerably below the theoretical proportional saving. In this respect electric utilities are not comparable with those manufacturing industries characterized by large volumes of repetitive work where theoretical savings may be more nearly attained. Nevertheless, some substantial savings of manpower can be achieved, particularly in the 24-hour daily shift cycle in power production and this measure may be regarded as a prerequisite for any special form of relief to those in need of such assistance. Last autumn the 48-hour week had been established in all departments for about 20 per cent of all utilities, for 32 per cent in the power production department, but only for 24 per cent and 14 per cent, respectively, for the transmission and distribution and "all others," the latter probably including general offices, accounting, and what remains of sales departments. All of the foregoing percentages are of total employees involved, and not of reporting companies.

Employment of Women

Great emphasis has been placed upon the employment of women, as replacements for men, in men's occupations, by the agencies concerned with the supply of manpower. It is possible that a successful accomplishment in this respect might also, like the extended work week, be regarded as a prerequisite for special consideration. On the whole, the total employment of women in electric utilities has increased materially, being 15 per cent greater in October, 1943, than on December 31, 1941. Although some of these women have been added in occupations customary for them or in clerical occupations common to either men or women, a substantial number of women have been reported who were employed to replace men in men's jobs. The occupations of this group range from semi-technical occupations such as draftsmen, laboratory assistants and testers, to manual occupations such as garagemen and stock handlers, or in the starting ranks in power stations—oilers, turbine or auxiliary helpers, etc.

The women in this latter group comprise about 3.6 per cent of the men in all categories lost to the armed services and to industry, or about one replacement for every 27 men lost. Numerically this group of women totals about 3000 for the entire industry; it is approximately 7 per cent of the *net* replacements employed or about one woman replacement for every 12 men replacements, for jobs formerly filled by men. Compared with many manufacturing industries having large amounts of bench, machine-tool or repetitive work, these figures are not impressive, yet the record indicates that women have been employed in a wide range of occupations considering the limitations of the short training periods that have elapsed so far, and have quite generally been satisfactory in these occupations. There appears to be no doubt of the willingness of the industry to employ women, nor of the success of those individual women who really like their jobs and propose to remain in them. The limitations occur in the relatively long training periods required for the better paid occupations and in the competition of the war industries.

It is apparently accepted that women seek work in war time either to make money or from patriotic motives or because their household duties have become light, or from real necessity because their men are away. It is natural that they should prefer maximum money return on the one hand, or a direct and obvious return in patriotic enthusiasm from work on munitions on the other hand.

Many competent observers, practical personnel men, have testified to the definite competitive effect of the "glamour" industries—airplanes, parachutes, tanks and ships, and ordnance materials. Perhaps it should be taken into account also that these such industries often offer very high rates after brief training periods, lots of overtime, and frequently many social diversions. It is not hard to see that an electric utility and all of its works, to one romantically inclined, must seem rather stodgy and dull by comparison.

Excessive Turnover in Women War-Replacements

This view is supported by the record of excessive turn-over among women employees who are war replacements. It must be appreciated that a prospective woman employee might not be strongly inclined to a type of employment where at least two or three years of training is required before the higher rates of pay can be attained and where the characteristic inducement of utility employment—that of long time continuous employment, is of little significance to them.

There are other impediments to the extensive employment of women. Some classes of utility occupations require comparatively brief training and would seem at first glance to make good employment opportunities for women. These are the "route" jobs such as meter reading, field meter-testing, bill-delivering and collecting. The common characteristics of the occupations is that they require long periods of continuous absence from an office or central depot, on one's own, following routes that have been laid out in advance and which must be followed quite diligently if the work is to be kept up to schedule. Although the physical work is light and in most cases the necessary training brief, and although the majority of reports indicate that such operations have been satisfactorily performed by women, only a comparatively small number of women are so employed. The reason reported is that the turn-over is excessive because women soon quit on these jobs, apparently because they dislike being alone on the job and the prolonged absences from a central depot. The conclusion is indicated that women replacements are best utilized in inside establishments, and that more or less serious limitations exist toward their employment in the field.

In spite of these inherent difficulties it should be emphasized that the reports on the women who have been employed in a large number of occupations ordinarily done by men have been prepon-

derantly favorable so far as the actual performance of the work is concerned, and there appears to be a fairly wide field open for their further employment if they can be recruited and will hold their jobs long enough to be adequately trained. There seems to be no doubt that extensive use of this source of substitute manpower can supply considerable relief to those utilities which are feeling the pinch of manpower shortages.

Accelerated Training

Increased attention to training is commended in the administrative letter of the OWU as it is by all Selective Service and WMC agencies. While the utility preference will probably remain that training for the higher power production jobs shall be done by promotion through the grades, there are no doubt other fields such as cable splicing, station maintenance or appliance maintenance, where definite accelerated training courses can accomplish much to relieve shortages.

Operations of Selective Service, WMC and USES

The general evidence derived from the October questionnaire indicated satisfaction, but not much enthusiasm, for the operations of Selective Service, WMC and USES. The scattering criticism that was offered was directed more to the statutory bases for these several agencies, than to the agencies themselves. While little can be done about the principles upon which, for example, the Selective Service Act was drawn, something can be done in connection with regulations, such as the lists of critical occupations or essential industries. In fact much has already been done to take care of the necessities of the industry. Even these regulations, however, are capable of misinterpretation by local boards or local WMC agencies, and it is at this level that the most beneficial results can be secured. Much can be done locally by electric utilities toward informing these local agencies of the special necessities for electric service, particularly of the importance of power supply to the direct war supply industries and to the housing and living of war workers. Perhaps individual workers may be forgiven for estimating the "glamour" industries to be more directly related to the war effort than power supply, but there seems to be no good reason that even the most isolated of the local agencies, particularly Selective Service boards, should not be fully aware of the essential nature of electric power supply in the war effort, a view that is amply supported by the directives and orders of the governmental agencies concerned with manpower and war production.

Necessity for Skill and Accuracy in Utility Workers

If missionary efforts of this kind are made by electric utilities in their own behalf, it will probably be found that the principal difficulty encountered will be that of convincing local officials of the necessity for the long periods of training to qualify workers for the serious responsibilities characteristic of nearly all occupations in the operating departments, due to the very nature of the industry, and affecting manual occupations which are, in themselves, extremely simple, often in the common labor category

New Members of the Institute

FOUR operating companies were elected to membership in the Edison Electric Institute at the last meeting of the Board of Trustees, and applications for membership from 23 companies are now before the membership committee and will be acted upon at the March meeting of the Board.

The new members elected are:

- Kentucky Utilities Co., Lexington, Ky.
- New Jersey Power & Light Co., Dover, N. J.
- Old Dominion Power Co., Lexington, Ky.
- Public Service Co. of Oklahoma, Tulsa, Okla.

Companies whose applications for membership are to be acted upon in March include:

- Attleboro Steam and Electric Co., Boston, Mass.
- Central Massachusetts Electric Co., Palmer, Mass.
- Fall River Electric Light Co., Fall River, Mass.
- Granite State Electric Co., Lebanon, N. H.
- Green Mountain Power Corp., Burlington, Vt.
- Haverhill Electric Co., Haverhill, Mass.
- Kansas Power Company, Great Bend, Kan.
- Lawrence Gas and Electric Co., Lawrence, Mass.
- Leominster Electric Light & Power Co., Leominster, Mass.
- The Lowell Electric Light Corp., Lowell, Mass.
- Malden Electric Co., Malden, Mass.
- Massachusetts Power and Light Associates, Boston, Mass.
- Massachusetts Utilities Associates, Boston, Mass.
- The Mystic Power Co., Providence, R. I.
- The Narragansett Electric Co., Providence, R. I.
- New England Power Association, Boston, Mass.
- New England Power Company, Boston, Mass.
- Northern Berkshire Gas Co., Northampton, Mass.
- Quincy Electric Light and Power Co., Quincy, Mass.
- Salem Electric Lighting Co., Salem, Mass.
- Weymouth Light & Power Co., Boston, Mass.
- Worcester County Electric Co., Worcester, Mass.
- Worcester Suburban Electric Co., Boston, Mass.

Since the end of 1941, the following additional companies have been elected to membership:

- Boston Edison Co., Boston, Mass.
- Central Power & Light Co., Corpus Christi, Texas.
- Concord Electric Co., Concord, N. H.
- Exeter and Hampton Electric Co., Exeter, N. H.
- Indianapolis Power & Light Co., Indianapolis, Ind.
- Kansas Electric Power Co., Lawrence, Kan.
- Northwestern Public Service Co., Huron, S. D.
- Rumford Falls Light & Water Co., Rumford, Maine.
- Southern California Edison Co., Ltd., Los Angeles, Cal.
- Southwestern Gas & Electric Co., Shreveport, La.
- The United Illuminating Co., New Haven, Conn.
- Western Massachusetts Electric Co., Springfield, Mass.

according to conventional classifications of manual occupations.

The ideas of most individual officials concerning manual occupations are probably formed from the common knowledge of the traditional trades and from the processes more or less common to manufacturing. It may often be difficult for them to understand the degree of responsibility or the potentialities for damage present even in quite simple utility operations. An error by a factory worker will hardly have a worse effect than the spoilage of the piece or batch being worked on. An error by a utility worker may cause stoppages in entire plants devoted to war production, impair the facilities for community and domestic living, and may damage or destroy electric power production apparatus which is practically impossible to replace at this time. Moreover, such calamitous results may be caused by workers quite low in the scale of occupational skills; the actual operations performed by such a worker may be of the most simple kind, but when they are performed they must be done well and with a full sense of responsibility.

Difficult for Laymen to Understand

This quality of responsibility for the serious results of small and simple operations appears to be difficult to convey to laymen accustomed to visualize industrial operations in terms of more familiar skills. Some have pointed out that entirely unskilled youths can be trained to operate a bomber plane with all of its complicated controls in less than a year, or a tank in two or three months. Granting that such representations are true, although they probably describe minimum achievements and not the total time required to turn out finished combat operators, it is still a fact that such achievements are not a measure of utility requirements. For war is essentially wasteful; if a plane cracks up or a tank goes off the road, the operator, if he survives, merely gets another plane or another tank; indeed the operators themselves are more or less "expendable." But the provision of electric power service is an economic operation and it is highly important that the capital units of investment shall be preserved to be useful for their full economic life, not to mention the circumstance that the major items are practically irreplaceable at this time, or the probable effects on industrial or community activities that might result from apparently simple operating errors.

11th Annual Commercial Meetings to Be Held at Chicago, April 3-5, 1944

APRIL 3-5 are the days set by the General Commercial Committee of Edison Institute for the eleventh annual spring conclave of the Commercial Service groups of the industry. The customary meeting place—Edgewater Beach Hotel, Chicago—has been chosen again this year.

Monday, April 3, is reserved for organizational committee meetings and special conferences on the subject of Farm Electrification, Industrial Power and Home Service. The annual dinner meeting of the General Commercial Committee will be the same evening.

A majority of the members of the General Commercial Committee meeting in New York on Jan. 11 occupied a full day deliberating on the planned programs of the numerous committees reporting to it. Some of the thinking of these committees was high-lighted in the January issue of the EEI BULLETIN. Chairman Edwin Vennard has urged advancing, as rapidly as possible, field surveys and analyses of the load situation for discussion at the April meetings.

The Commercial Planning Committee expects to hold a session on post-war planning.

Another feature of the meetings will be recognition of the 10th Anniversary of the Better Light-Better Sight Bureau and the effective achievements of its educational service to the public and the electric industry.

A Program Committee has been appointed to develop the speaking schedule for April 4 and 5.

These annual commercial get-togethers have been the leading industry meetings of the year. Again all utility representatives, manufacturers of electrical equipment, and all others interested in the wider expansion of electric service in the industrial, commercial and residential fields, and on farms, are welcome to attend.

It is recommended that hotel and pullman reservations be made promptly.

Radio Broadcasts on the Electric Industry

THE U. S. Chamber of Commerce, with the cooperation of the Edison Electric Institute and other representative trade associations, is sponsoring a series of radio broadcasts to be given over 150 stations during the next few months. Six of the broadcasts will feature the electric industry.

The first broadcast dealing with the electric industry will be given during the week of Feb. 7, 1944.

The whole series of programs will be publicized as "The War of Enterprise." All are planned to dramatize the achievements of American industry under the American system of free enterprise. Each broadcast will stress wartime accomplishments of a particular industry.

The radio programs will not be handled as network broadcasts, but will be transcribed and given over stations in 150 or more cities in all parts of the country.

A list of the cities and stations that will present the programs may be obtained from the Institute upon request.

The general themes of the six broadcasts covering the electric industry are as follows:

1. The Electric Industry Was Ready —Prepared for War in Time of Peace.

2. How the Industry Carried Electricity to the Military Establishments and Munitions Plants.

3. Electricity's Part in Supplying Basic Materials for War.

4. How the Electric Industry Has Kept the Home Fires Burning.

5. How the Industry Keeps the Juice Flowing in Face of Floods, Snowstorms, Cyclones and Pearl Harbors.

6. Electricity's Greater Part Ahead in the American Way of Life.

The scripts for the six broadcasts are being prepared by experienced radio script writers employed by the U. S. Chamber of Commerce, subject to the Institute's review and editing. The transcribing with music, sound effects and actors will be handled entirely by the Chamber also. All of the scripts are to follow a general pattern of several dramatized incidents interspersed with narration and comment by Hardy Burt, radio commentator for the Chamber. The program will utilize a cast of actors, music and production techniques of the best network caliber.

OWU Letter on Manpower Problems in the Electric Industry

WAR PRODUCTION BOARD
Washington, D. C.
ADMINISTRATIVE LETTER

January 5, 1944.

The Power Division of the Office of War Utilities has recently concluded a series of meetings with representatives of the industry to discuss manpower problems and explore means by which the Office of War Utilities can assist utilities in meeting them. Participants in these meetings included representatives of both publicly and privately owned utilities from all sections of the country, with extensive experience in dealing with manpower problems for power systems. We believe that a brief report of the discussion and of the recommendations which came out of the meetings will be helpful to the industry.

Present Situation of the Electric Industry

Considerable illuminating background material has been obtained from the results of a questionnaire circulated by the Edison Electric Institute. The data disclosed by the questionnaire confirm the reports of electric system representatives that, although the manpower situation in the electric field is not generally critical at present, the trend is toward increasing difficulties in maintaining adequate and competent labor. About 15% of the utilities reporting, measured in terms of number of employees, consider the present manpower situation critical. The reported critical situations are not concentrated in any section of the country, but small systems seem to be more seriously affected than large ones. As to future developments, 38% of the reporting utilities, in number of employees, expect a critical situation by March 1944, and 48% by September 1944. This anticipated trend toward greater difficulties probably arises because of expected further losses of trained and skilled manpower to the armed forces and to other industries, and because of expected difficulties in securing suitable replacements. Reports indicate that the total number of employees is expected to remain about the same as at present.

Electric utility employees lost since December 1, 1941, total about 35% of 1941 employees, of which 20% were lost to other industries and 15% to the armed forces. It is expected that future losses to industry will decrease, but there are still many utility employees who are subject to Selective Service. Present employees between the ages of 18 and 38 are reported as 25% of the total. Of this group approximately 2/3 are fathers and 1/3 are non-fathers.

Critical Occupations

The various agencies of government concerned with manpower have issued numerous nation-wide regulations for control of manpower, and have set up several regional manpower stabilization plans. Areas not covered by local stabilization plans are subject only to the over-all regulations. All sections of the country come under the rules governing the operations of Selective Service.

A very important regulation affecting the work of Selective Service Boards is Local Board Memorandum No. 115 which contains a List of Critical Occupations. In general this includes occupations requiring long experience and in which a national shortage exists. Employees whose occupations are included on this list and who are engaged in essential industries are given the greatest consideration for occupational deferment, although as stated in Local Board Memorandum No. 115, in determining whether an employee is "a necessary man" and thus eligible for occupational deferment, emphasis is also placed on replaceability. The replaceability of employees is most frequently determined on the basis of the possession of certain skills, but local conditions may be such as to make employees irreplaceable without reference to any special training, qualification or skill.

A number of occupations of importance to utilities are included on the Critical Occupations List. Such listing is apparently of considerable assistance in connection with maintaining an adequate operating force in the classification listed, and it may be possible to make some additions to this list to include important occupations not now included. However, utilities in dealing with their Selective Service officials should place special emphasis on the local conditions affecting the replaceability of employees. Even though an occupation may not be on the List of Critical Occupations, employees in this class may not be replaceable under conditions in the particular locality.

Cooperation with Local Manpower Agencies

Utility companies must take every opportunity of emphasizing to their local War Manpower Commission, United States Employment Service and Selective Service officials the importance of their operations in maintaining the war effort and essential civilian activities. It is important that local and regional manpower officials be given an appreciation of the relation of your service to all phases of industry and community activity in order that their utmost cooperation may be had in retaining employees until new employees required can be obtained. Also, you should make sure that local manpower officials are aware that your industry is included in the List of Essential Activities named in War Manpower Commission's General Order No. 11.

Use of Replacement Schedules

Representatives of utilities which have used replacement schedules have expressed satisfaction with the results obtained. By this method of handling manpower problems the various controls can be coordinated so that Selective Service is less likely to take men for the armed services in advance of finding suitable replacements through United States Employment Service. The returns from the EEI questionnaire show that only one-half the utilities are making use of replacement schedules. It is believed that most utilities would find it advantageous to employ this method of establishing manpower requirements. Information on the use of replacement schedules can be obtained from Selective Service officials.

Training of New Employees

Employee training efforts of utilities have been stepped up during the war period. Approximately two-thirds of the reporting companies stated that new training methods or training within industry programs had been instituted since the war. However, it appears that

(*Continued on page* 58)

Progress Continues in Simplification of Reports to Governmental Agencies

By W. G. Bourne, Jr.

The Commonwealth & Southern Corporation and Chairman, EEI Committee on Simplification of Reports to Governmental Authorities

FOR the year 1942 the Federal Power Commission agreed to accept from electric utilities in lieu of their printed annual report form, a report prepared by a stencil process on a standard mimeograph machine. This produces a report on standard size paper 8½ x 11 inches and legible copies in desired number can be made without additional cost, whereas several typings were required to get enough copies on the printed forms. Several of the state commissions agreed to accept a copy of the same report. The companies using the mimeograph method were well satisfied with the results and many companies reported considerable savings, particularly in manpower. The Securities and Exchange Commission for the year 1942 also did some streamlining of its annual report forms which gave relief to respondents.

During 1943 our committee gave considerable thought and study to further reduction in reporting requirements to the Securities and Exchange Commission, the Federal Power Commission and the state commissions. A composite form was designed for annual reports to state and federal utility commissions for electric, gas and water utilities whereby through the multiple use of a limited or varying number of forms the report could be extended to utilities of all sizes as well as to municipal and other governmental undertakings. This idea was presented to the Committee on Statistics and Accounts of the National Association of Railroad and Utilities Commissioners at a meeting in Chicago on December 1, 1943, and favorably received. That committee, however, felt there was not sufficient time to study the proposal, confer with their respective commissions and make the new form effective for 1943 reports. They agreed to confer again this year with our committee and it is hoped to work out a composite form for use in the 1944 annual reports.

At the Chicago meeting, it was agreed that recommendations would be made to the FPC and various state commissions to grant immediate relief to utilities by allowing elimination of a number of schedules and modification of others, also to provide for the omission of schedules where the answer is "none" or "not applicable" and to accept reports prepared by the stencil process. On December 29, 1943, the FPC issued an order listing 36 schedules that may be omitted in the 1943 annual report on their Form No. 1 and provided for the modification of two schedules and for an omission sheet for listing schedules where the answer is "none" or "not applicable." The acceptance of the report prepared by the mimeograph process was also continued. Several of the state commissions have taken similar action. On January 10, 1944, a similar order was issued by the FPC with respect to their annual report Form No. 2 for natural gas companies (formerly FPC Form No. 133), which allowed 23 schedules to be eliminated, modified four schedules and provided for the acceptance of the report prepared by the mimeograph process. Such companies also reporting on FPC No. 1 can take advantage of 46 schedules which are common to these two reports. (See table below)

Some modifications have also been made in the reporting requirements of FPC Form 12 and 12A (formerly No. 64 and 64A). These are annual production reports of electric generating systems. This work was carried on by the Utility Sub-committee on Government Questionnaires of the Advisory Committee of the Bureau of the Budget with which our committee cooperated.

Our committee has also cooperated with the same utility sub-committee of the Budget Bureau in efforts to get further relief from the SEC. It still may be possible to get additional reduction in reporting requirements for the year 1943. Studies of the SEC forms are to be continued this year to further simplify and unify the forms as much duplication still exists, particularly in the financial statements.

The A. B. Dick Company prepared the stencils for FPC No. 1 which were used in 1942. The EEI underwrote the cost of the dies and stocked and distributed the stencils. These were used in 1942 by more than 100 companies and the EEI had left over in stock some 77 sets of these stencils. The A. B. Dick Company has cooperated with our committee during this past year and has agreed to stock the stencils and merchandise them for the 1943 reports. That company is expected to announce the stencil sets will be available sometime in February at around $20.00 per set. The A. B. Dick Company is also preparing a stencil for FPC Form No. 2 for natural gas companies which may be ready about the same time.

The following are members of the Committee on Simplification of Reports to Regulatory Authorities:

Messrs. W. N. Lewis, Ebasco Services Inc., and C. L. Walling, American Gas and Electric Services Corporation, representing the electric utilities; E. K. Higley, Middle West Service Corporation, and James Comerford, Consolidated Natural Gas Company representing the gas utilities.

(Continued on page 58)

	Total	*Electric*	*Gas*	*Water*	*Common*
Schedules included in 1942 NARUC report form.....	224	75	46	35	68
Schedules included in 1942 FPC form No. 1 (Electric)	142	142	...	...	...
Schedules included in 1942 FPC form No. 133 (Gas).	142	...	142	...	...
Total (excluding schedules required by State Utility Commission)	508	217	188	35	68
Schedules included in Suggested Consolidated form including all the requirements in the 1942 forms.....	197	22	44	15	116
Schedules included in Suggested Consolidated form after eliminating certain suggested omissions.....	139	21	23	12	83
Schedules included in 1943 report forms by voluntary action of regulatory authorities pending future action of NARUC Statistics and Accounts Committee.....	400	174	110	30	86

Who Is Responsible for Farm Electrification

Free Enterprise or The Government?

By J. A. Whitlow

Vice-President, Public Service Company of Oklahoma

THE Federal Government has now entered into many phases of the electric power business, particularly in the building of hydro electric plants. In some respects this was a natural development of the more general plan for various kinds of stream development such as irrigation, flood control and navigation. In some of these cases the addition of incidental water power is quite natural if it can be done economically. Up to this point we can all agree. The disagreement starts when those who militantly favor government ownership and control of industry, take shrewd advantage of the situation by persuading the government to go further and enter into competition with business managed electric companies, and even to the point of absorbing these institutions. This necessarily results in strife and discord, and the whole problem enters the stage of propaganda, pressure and counter-propaganda.

In 1935, by executive order, the president of the U. S. established the Rural Electrification Administration (REA) for the dual purpose of administering relief by spreading employment, and to bring the advantages of electricity to the farmers in areas too thin to be served as a business enterprise. This was a laudable undertaking and one which we can all approve. Some of those now connected with the national REA administration assert that the electric companies opposed this from the start. This is not correct. The companies were called into a conference by the first Administrator and they approved the announced purpose of bringing electric service to "rural areas not receiving services." They received definite and unqualified promises that REA would not interfere with them or engage in competition with them. The government ownership bloc soon upset this plan so that in many places lines were built with government subsidies, into communities already supplied with electric service. Again the situation enters the stage of propaganda, pressure and counter-propaganda.

The REA bureaucrats seem to have thrown to the wind such a trifling matter as local service to farmers not previously supplied, although they keep the loud pedal working overtime on that argument. The plans now frankly call for large power plants, and transmission lines duplicating such facilities of the companies under business management.

In Texas REA built a line one hundred miles long to serve a factory making engines for the navy, although a power company had a transmission line within one hundred yards of the place and was already supplying the power.

REA built the 195 mile line from Markham's Ferry in Oklahoma to Lake Catherine, Arkansas, to supply power to an aluminum plant although a pool of 10 power companies was making provision to furnish this power and has furnished it when the said REA transmission line broke down. While the controversy was raging over this project an executive of REA, told an executive of one of the power companies he might as well shut up, REA would build the line because "REA is lousy with money."

The scandals created by the waste of taxpayers' money and of vital materials needed in the war effort, brought reaction in Congress and these abuses are temporarily abated. There is no change of heart however, and the bureaucrats are using this time, while the feeling is dying down, to reassemble their forces and lay the campaign for an "all-out" effort. They organized a so-called voluntary association of REA cooperatives and placed at the head of that association one of the noisiest propagandists, ex-congressman Clyde Ellis* of Arkansas, whom the voters in his own party resoundly repudiated at the last Democratic primary.

They called a convention of this association in St. Louis, January 19 and 20, 1943, which was said to have been attended by about 1000 representatives of local REAs from most every state. If any farmer left there without thorough indoctrination it was not the fault of the program. Addresses were made by Secretary Ickes, Ex-Senator Norris, Congressman Rankin, Leland Olds, and others. A REA administrative officer referred to the electric companies as "those buzzards." Plans were made for barnstorming Congress for the release of materials for more lines. All the above is recited here to establish the necessary background for one thing which it is our intention to discuss now. That one thing is an argument which the REA group are using. It is the claim that until REA appeared there had been no farm electrification. Sometimes they only say that the electric companies had not tried very hard to give the farmers electricity and sometimes in their enthusiasm some of these people have said that the electric companies have tried to prevent the farmers getting electricity. They lay particular emphasis on the argument that the electric companies will not extend service to the farmer except for an "unreasonable profit."

Once a manager for one of the neighboring cooperatives was in the office of this writer and made the statement, "You people have not tried to extend service to the farmer unless you could get full return on your money." We cited many instances where long and unprofitable extensions had been made, but particularly we gave him some of the history of the Company's effort to promote rural electrification. He made this statement: "They never told us any of that." When asked what he meant by that statment he revealed that the managers of local cooperatives had been called to Washington for schooling and instructions. A good word for power companies was not part of this schooling.

We are also happy to say that the relations between our Company and various rural cooperatives in our area are very congenial. We exchange ideas and also assist with the loan of tools and materials. We do not pirate one another's system for customers and a customer who fails or refuses to pay a bill cannot get service from the other's lines. Sometimes a new manager of a cooperative is

* Mr. Ellis is now in the Navy.

combative, but it is a poor person who cannot observe he is receiving courteous cooperation. Our observation is that if the original idea of bringing electric service to the farmers, whom the electric companies cannot or will not supply is adhered to, everybody profits, no one is injured, and the best understanding and mutual cooperation will prevail.

But back to the bureaucracy and the claim that electric companies have not done their duty toward the farmer. The following is to be a factual and historical account of rural electrification, particularly for the period preceding 1935, when REA was established.

Rural Electrification Not New

Electricity was not new when Edison developed a usable electric light. Electricity was already being put to use in many ways. Rude generators had been built, arc lights were already in use, and some early electric motors were in operation. One of the earliest efforts to use a motor was for plowing, and this was one year before Edison built his incandescent light. After the lamp was improved electric companies were formed to light towns, and right along with the towns many farmers obtained the service. The best early use of the electric motor was on farms—for irrigation. Before the year 1900 many farmers in California were using motors to pump water for irrigation.

There were so many unrelated attempts to develop uses of electricity that many different systems were established which had different characteristics. A person could move from one place to another and use the lights, fans or other electric devices he had been using. But improvements and standardization proceeded rapidly, so about the year 1900 is considered the beginning of modern electric service. That was not very long ago and there were only about 350,000 electric customers in that year as against over thirty-two million in the United States now.

When the bureaucrats tell you that the electric companies have prevented farmers from having electric service for ten years, they might as well say 50 years or 500 years. They might as well say the companies prevented anyone from having electric until Edison invented the incandescent lamp. As recently as 1900 there were only 350,000 people using electric service and even then a goodly number of these were farms. Even at that time there were strong efforts to induce farmers to use electric power. Mr. A. G. Wishon, who headed up a company in California, was a leader in farm electrification. His company extended many lines to farmers and he arranged a traveling exhibit, in a railroad car, since there were no gasoline trucks in those days. In 1905 this writer tended substation at Lindsay, California, and was maintenance man for electric lines to 102 "ranches." This was exactly 30 years before REA was born.

The electric companies of the nation formed the National Electric Light Association, which through its committees studied various phases of the industry in order to bring about improvements. Among the problems the Association attacked was that of Rural Electrification. This association in 1910 created a Committee on Electricity in Rural Districts. The next year this committee presented a report of 87 pages, which is the first accumulation of data on farm electrification, showing the spread by states and districts, the rates and average monthly bills. The report also carried recommendations for further promotion of this activity. The next year (1912) the report showed more than 100 different uses of electricity in farm houses, farms and dairies, not including many rural industrial uses. The Census Bureau in this year also reported favorably on the growth of rural electrification.

From this point on the electric companies showed great industry in studying and promoting electricity on the farms. Different committees and subcommittees studied various features, such as development of equipment, use in dairies, in poultry farming, feed cutting, etc. Other committees developed an understanding of costs and financing and rates. Experiments were tried with iron wire in an effort to reduce costs and thereby extend the use. The programs of the various state and district conventions devoted a large amount of time to discussions of this subject. The electric companies spent large sums on the chance that this part of the business would develop, so that in 1922 the NELA Rural Lines Committee reported, "A large percent of the rural customers now being served are receiving service at less than cost." The Department of Agriculture was now becoming interested and the Federal Power Commission began assembling data.

An important step was taken at this point at the suggestion of the electric companies. In 1922 their Rural Lines Committee recommended to the American Farm Bureau Federation a cooperative program which resulted in the creation of the Committee on the Relations of Electricity to Agriculture (CREA) and for the next 13 years this committee was the hub of a mighty effort to bring the benefits of electricity to the farms. This committee really represented cooperation to a wide degree. It consisted of twelve members, three from the American Farm Bureau Federation, four from the electric companies, one from the American Society of Agricultural Engineers, one from the manufacturers of farm electric plants and one each from the departments of Agriculture, Commerce and Interior.

Early Experiments

Dr. E. A. White was elected as salaried director by this committee and immediately began a nation wide effort to promote the use of electricity on the farm. He traveled far and wide attending utility conventions in every state and holding conferences where he got the agricultural colleges, the farmers and the electric companies together. His methods were therefore largely educational. Experiences were exchanged between the companies and their extension policies and rates were liberalized, but one great handicap was the natural conservativeness of the farmer and his reluctance to pledge continued use of the service if the electric company made the necessary investment. The agricultural colleges became greatly interested and instituted departments of research for assistance to the farmers. The companies employed special farm representatives, usually experienced graduates of these schools. Some of these men became and to this day remain an important and integral part of the farming community.

One important step undertaken by the electric companies, usually in cooperation with the colleges, was the establishment of experimental lines. These were built into typical farming communities, and arrangements made so that the farmers would use the electric power for a variety of purposes. Careful records were made of the investment in the line, the investment in farm, dairy or poultry raising appliances, and the amount of electricity used for these various purposes. It was understood quite early that the investment in the rural electric line could not be justified unless the farmer could afford to purchase the equipment to use the power. This could easily amount to several hundred dollars, in addition to the monthly cost of the electricity itself.

One of the most famous of these experimental lines was near the town of Red Wing, Minnesota. Mr. G. C. Neff, who was with one of the Wisconsin companies, was very successful in his efforts in that state and his work was in no small part responsible for the wide and profitable use of electricity by the excellent Wisconsin dairies.

The cost of all this work was not small. The National Electric Light Association spent about $400,000, and the individual electric companies about a million, while individual contributions and free services approximated another million. Hundreds of pamphlets were distributed. One bulletin alone listed 227 uses of electricity on the farm and 190 uses by isolated rural industries. The committee (CREA) continued to work up to 1935 when REA was established. Some of the farm organizations and the government departments then withdrew.

Work of Oklahoma Electric Companies

It is satisfying to the author to know that the state in which he resides did its part. The Oklahoma Gas & Electric Company has always been particularly progressive with a staff of rural representatives. It built some experimental lines, one of which, near Pauls Valley, developed some useful information. The Public Service Company of Oklahoma instituted a policy whereby it agreed to extend electric service wherever it could obtain three customers per mile of line. In Tulsa County it succeeded in practically covering every portion that could comply with this condition. A few years later during the depression many of the farm customers were obliged to forego electric service and for sometime farm electrification lagged but was not abandoned.

The Oklahoma A. & M. College made an outstanding contribution to the program. It established courses, particularly in its short courses, to promote electrification, and secure greater production for the farmer. In 1932, having obtained an appropriation from the legislature to be used for research on uses of electricity on the farm, the college undertook a state-wide study of the development and particularly a study of existing uses, the resultant advantages and costs, and how further use of electricity by the farmer could be profitably made. A graduate student, Mr. Earl R. Miller, was appointed Research Assistant in Rural Electrification and delegated the task. The appropriation was not sufficient to do the job, so the college asked the electric companies to contribute an amount to match the state's appropriation for the work. At that time the companies were being accused in some quarters of using propaganda, including the charge of having influenced the colleges and teachers, so they were hesitant, but an understanding was reached and they pledged the suggested amount. Unfortunately, the state's finances were so short that year that after the work was under way it was learned that the state's appropriation would not be available. The college put the matter before the companies and they advanced another sum to complete the study. Mr. Miller did an outstanding job, but there was no money left to publish the results. Again the companies were appealed to and more money was against contributed by them and the bulletin published. This is Experiment Station Bulletin No. 207 and is one of the outstanding contributions to the whole rural electrification program. Altogether the Oklahoma electric companies contributed about $10,000 for this work of Mr. Miller.

The electric companies of Oklahoma have been active in rural electrification in many ways. Very early they cooperated by sending delegations of farmers from their areas to the rural electrification meetings where they were addressed by Dr. White and where they related their experiences. The most effective speakers were farm housewives who had already received the advantage of proper light and labor saving devices. To this day these Oklahoma electric companies carry on their assistance, fostering, under the auspices of the agricultural college, courses in the farm vocational schools. Each year outstanding students are sent to the state fairs at Oklahoma City and Tulsa and the winners of certain contests are sent to the live stock show at Kansas City at the expense of the major companies.

Early Progress Was Rapid

As usual Americans can be proud of the performance of their business enterprise. No nation has shown the same energy or the progressiveness in the field of rural electrification. In the controversy that has unfortunately prevailed in this respect some claims have been made that business managed electric companies in the United States have not made satisfactory progress in the field of farm electrification and that results in some foreign countries have been more satisfactory. We have recounted the pioneer efforts in this vast country and will now attempt to summarize the results, comparing these results with progress in other nations with the present activities in the United States.

In 1935 when the Cooperative Committee (CREA) was dissolved, it had been functioning for thirteen years. The accompanying table gives the percentage of farms electrified in the United States when it went into action and when it discontinued because REA had been established by presidential order.

PERCENTAGE OF FARMS ELECTRIFIED

Region	*Jan.1,1924*	*Dec.31,1935*
Pacific	20.3	53.8
New England	10.1	47.9
Middle Atlantic	7.1	34.8
Mountain	4.6	20.9
East North Central	3.1	20.6
West North Central	1.8	8.5
South Atlantic	0.6	5.7
East South Central	0.6	3.2
West South Central	0.4	2.3
The states in which more than 50 per cent of the farms were electrified by 1935, line up as follows:		
New Hampshire	11.4	68.3
Utah	12.9	61.0
Connecticut	11.3	61.0
New Jersey	3.4	60.5
California	23.5	59.8
Rhode Island	10.2	59.5
Massachusetts	7.3	57.3
Washington	18.7	57.1

The totals were 177,561 electrified farms in 1923 and 788,795 in 1935, an increase of 344 per cent in 12 years, four of which were the worst depression years. During better times, from 1924 to 1930 there was an average increase of 38 per cent per year.

Now that REA has appeared in the picture the growth in rural electrification is even more rapid. The groundwork laid by the electric companies over many years is bearing fruit, and both REA and the companies find it easier to persuade the farmer to subscribe for the service. By 1941 about one-third of the farms were electrified or approximately 2,100,000. Of these some 607,000 were served by rural cooperatives (financed by REA) and about 1,500,000 were being served by the electric companies. The position of the states from the standpoint of saturation changes, but as proof that REA is not totally responsible for the increase in rural electrification is the fact that Rhode Island, Connecticut and Massachusetts have no REA lines at all and they rank first, third and sixth, respectively, in percentage of farms electrified.

Greater Farm Use in the United States

One of the favorite criticisms by the government ownership group is the claim that the United States has not reached the degree of farm electrification that

has been attained in some foreign countries. And as example they quote France, Japan, Switzerland and the Norwegian countries. In France and Japan there are really no farms in the sense there are in this country. They are not only much more densely populated but the farmers live in groups or villages and go out from there to till their plots of ground. In those countries it is more like village service than farm service. Yet these places are compared with the United States and its broad expanses. There is one county in Oklahoma where the school population is less than one per square mile, yet this is compared with Japan with its dense population of 490 per square mile. In Japan the city user or the farmer usually has one small light in his house and no other appliance for service.

As for Switzerland and the Scandinavian countries, they are no more truly advanced in rural electrification than are those states such as New Hampshire or New York that compare with them in terrain, density of population, and prevalence of hydro power that is really cheap and not just called cheap.

It should be noted too, that rural electrification is most advanced in those states where economic conditions are strongest. Thus the least progress has been made where settlements are thin and also where the average income is low and the percentage of tenant farmers high, as in some of the southern states where share croppers are found in greatest number. Even there some wonderful progress has been made and no European country where conditions resemble those of Georgia or Alabama, can show anything to equal the rural electric development of the two large power companies in those states.

REA Did Not Have These Early Difficulties

The foregoing brings us up to 1935 when REA was established by executive order. The story was given to show the falsity of the claim that the electric companies had done nothing to bring electricity to the farmer. One of the greatest difficulties in those days was the natural conservativeness of the farmer. He didn't have money to throw away on new fangled ideas. As yet the electric refrigerator had not been perfected, or even invented. There was no radios in those days, so taken altogether there was not the inducement for the farmer to desire electric service. Now that these modern devices and conveniences have become necessities it is easier for the electric companies to sell electric service to the farmer and the additional use also makes it possible for the company to build farther for fewer customers.

It is also easier now that the ice is broken for REA to sell the idea to the farmer and build its lines where 10 years ago farmers would not have "signed up" for the service. The trouble now is that the REA bureaucrats tell the people they brought all good things in this world and not until they came along did the farmer get any electric service. At the St. Louis meeting, mentioned earlier, Clyde Ellis said, "When REA was formed, the Power Trust had not gone into rural areas."

These REA propagandists tell the farmers that the electric companies' rates were held up to a high point because they were trying to earn a cost for the line of about $2,000 per mile, but when they (REA) appeared in the picture they reduced this cost to less than a third of the previous costs therefore they could sell service at a lower rate and build to more farms. Everybody knows that bureaucrats working with government money

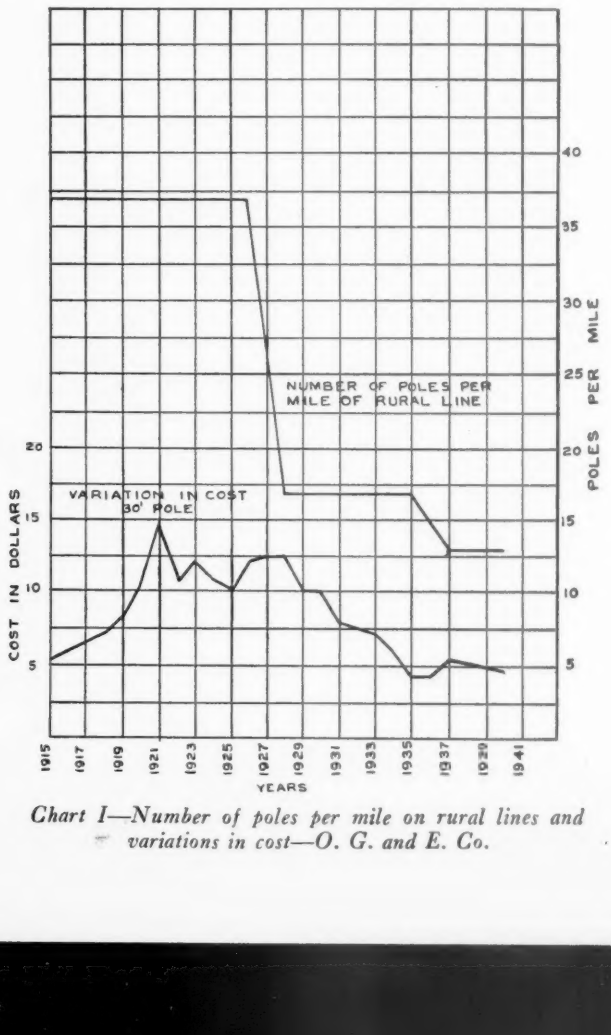

Chart I—Number of poles per mile on rural lines and variations in cost—O. G. and E. Co.

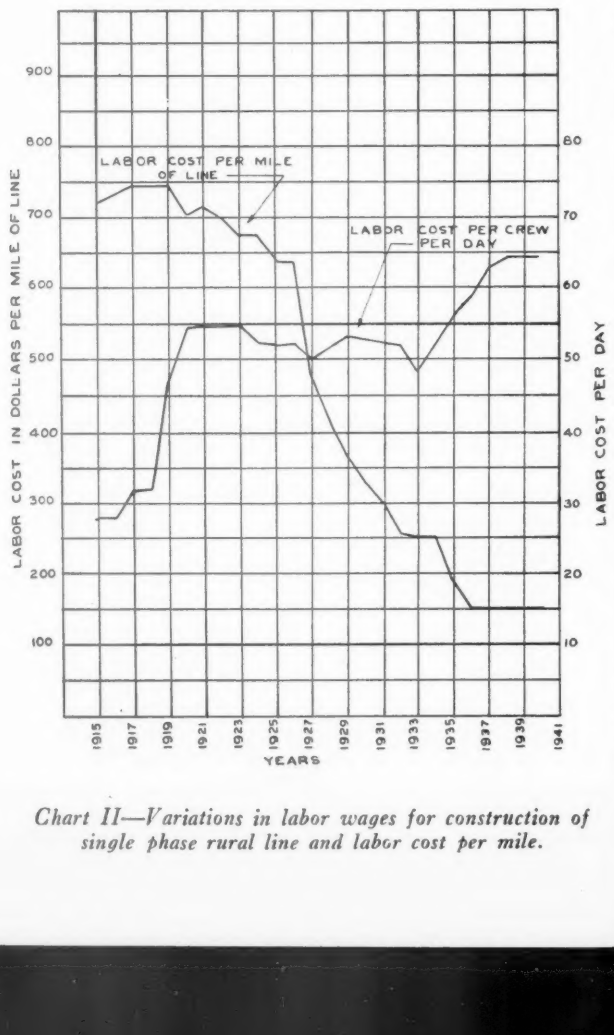

Chart II—Variations in labor wages for construction of single phase rural line and labor cost per mile.

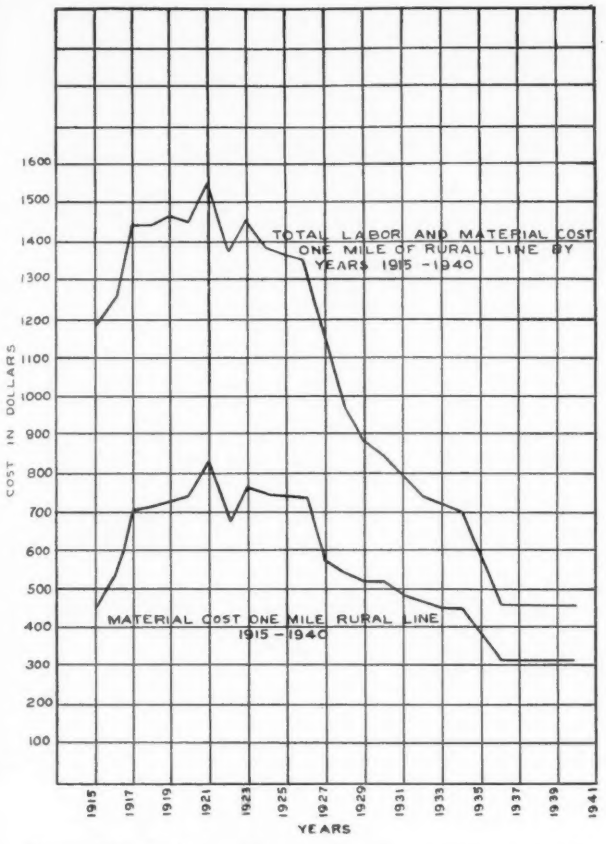
TOTAL LABOR AND MATERIAL COST ONE MILE OF RURAL LINE BY YEARS 1915 - 1940
MATERIAL COST ONE MILE RURAL LINE 1915 - 1940
COST IN DOLLARS
YEARS

Chart III—Labor and material cost per mile of rural line, 1915-1941—O. G. & E. Co.

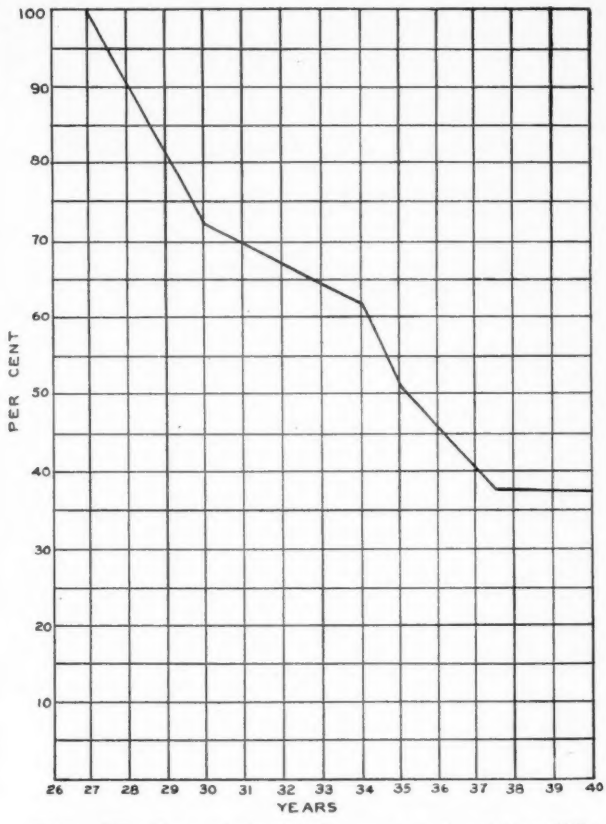

Chart IV—Rate of decline in cost of electricity—100 kwhr/mo to customer through ½ mile of line and 3-kva transformer.

are reckless with costs, so let's see what the facts are about this too.

Costs Were Being Constantly Reduced

Mr. Roy Hayman of the Oklahoma Gas & Electric Company has been in this work since its original inception and has become an outstanding authority on all farm subjects giving liberally of his time and energy for whatever is for the betterment of the Oklahoma farmer.

Mr. Hayman made a historical study of the costs of rural electric overhead lines, from his company's records, and has shown the result of his study in the following very interesting charts. The top curve on Chart I shows the number of poles per mile the company set in the ground for these farm lines at different years. Up till 1926, you will observe they used 37 poles per mile. This was because the copper wire used in those days would sag badly if the poles were set far enough apart to enable the company to use fewer poles. By 1926 a wire was manufactured that consisted of a steel wire surrounded by several small aluminum wires. The aluminum was necessary to conduct electricity without undue losses, while the steel furnished the tensile strength for longer spans between poles. There were thus fewer poles to buy, ship, haul and set, also fewer cross arms, insulators, bolts and braces, also much less labor required. Now this started in 1926, nine years before REA had been heard of. The copper industry, to meet the competition of aluminum, developed a copper coated steel conductor that gives like service.

There are two curves on Chart II. One shows the cost per day of a gang of men such as are needed to work on one of these country extensions. This curve shows a rising cost. Over the years, as the men receive higher wages, the cost per day for this gang of men gets higher. But the other curve shows that although the daily wages have been climbing up, the labor cost of a mile of line had been going down. This was largely due to the fact mentioned above —the number of poles used per mile had been greatly reduced, which meant far less labor required.

The horse and wagon of earlier days were discarded in favor of the gasoline truck. Where at one time the crew could go only three or four miles from headquarters without excessive loss of time, they could now go twenty or thirty. In addition the trucks were later equipped with devices for raising poles and transformers and for pulling the wire to position more quickly. So while the men were being paid much higher daily wages, the work was going on so much faster and more efficiently, and work required was being reduced, so that while in 1920 the labor cost per mile of line averaged $700, by 1935 when REA first appeared, this labor cost had been reduced to less than $200 per mile, and the figure now runs about $150 per mile.

All this time the electric companies were not only reducing the cost of their lines but the manufacturers were also reducing the cost of materials. The bottom curve on Chart III shows the way material costs declined and the top curve shows the descending cost of a mile of line for both labor and material. Notice again the great decrease from 1920 to 1935. These lower costs mean that there will be less interest to pay on the money needed.

During all this time the electric com-

panies were also developing cheaper ways of generating electricity in their power plants. When all these lowered costs are put together, it results in lower monthly charges for the service, and Chart IV shows the rate of decline in the cost of electricity. If the cost in 1926 is considered to be 100 per cent, then by 1935 the cost was only 50 per cent or one half what it was. The reductions were slowing up about that time but from 1938 to 1940 the charges for farm electricity are only about 37 per cent of the charges in 1926. In the space of 12 years the rates had been reduced 63 per cent.

How Do We Stand Today—1943?

We believe the preceding pages will demonstrate to any fair minded person that the electric companies, from the beginning of the idustry, have worked diligently to develop uses of electricity on the farm. They maintained rural experts who themselves were practical farmers to advise with farmers, how best to obtain maximum benefits. By 1935, when REA was created 788,795 farms were being served. After REA came into the picture, the electric companies continued their usual activity so that by August 30, 1941, the companies were serving 1,500,000 rural customers. By this time REA was serving 607,000 consumers and had allotted $388,827,121 to rural cooperatives.

At this time a comparison of the number of rural customers served by electric companies and by REA is difficult because of the difference in the way they keep their records. The companies are not now reporting all customers served from rural electric lines, but report only the number who are actually farmers. On this basis the latest approximate figures (1943) indicate that there are 2,586,000 farms in the United States receiving service. Of this number the electric companies are serving 1,600,000, municipal and other public power systems are serving 126,000 and REA serves 860,000. REA claimed to have 1,010,000 "customers connected" at the end of 1942. Of these 210,000 were nonfarm including all kinds of country business such as stores, shops, filling stations, road houses, and also army camps and the like. It also included many towns and villages. If the electric companies reported the same way, the comparison would show they are serving several million such consumers.

During 1942 the electric companies alone extended service to an additional 116,173 farms, but the war was having its effect so this was less than half of the additional farms they added in 1941. We do not know the actual number of farm customers added by REA. The bureaucrats had diverted part of their energy and money to building up an empire by purchasing built up systems, building power plants and transmission lines. The local cooperatives are still doing a good job and it would be a fine thing if all parties could get together and pool their energies to instruct the farmers in the most advantageous uses of electric power, obtaining the service from the most economical source and serving the most people. The farmer is naturally a sound thinker and not inclined to milk future generations to build up jobs for a certain kind of bureaucrat.

T.V.A. Taxes Going Down; Private Utility Taxes Coming Up

TABLE I shows a steady rate of decline in the ratio of TVA taxes to revenues, as compared with a constant increase in utility company taxes (Table II) during the same fiscal periods. If the TVA municipalities had, like the average private company, paid in taxes 24.7 per cent of their gross revenues (*including taxes*) last year, their revenues would have to have been raised to $43,443,185* and their total taxes would have been $10,730,465 or more than five times what their books show as "taxes and tax equivalents."

The same principle applies to the parent TVA: if it paid comparable taxes, it would have to raise its rates and the price of energy to the distributors would be increased accordingly. These, in turn, would have to raise *their* rates and revenues and taxes would be further increased. The entire system of taxation involves a pyramid of astonishing proportions, which publicly owned enterprises succeed largely in escaping.

Table I is derived from "Financial Statements—Municipalities & Cooperatives—A Report from the Comptroller of the TVA to the Board of Directors"; years 1940/41 as per page 3 of 1941 report; years 1942/43 as per page 2 of 1943 report. Table II is from Statistical Bulletins of the EEI.

TABLE I — TVA MUNICIPALITIES AND COOPERATIVES

Fiscal Year June 30:	*1940*	*1941*	*1942*	*1943*
Gross Revenues	$21,624,008	$27,371,904	$31,123,129	$34,670,332
Taxes and Tax Equivalents	1,638,389	1,788,743	1,843,576	1,957,614
Taxes as Per Cent of Revenues	7.58%	6.53%	5.93%	5.64%

TABLE II — ALL PRIVATE UTILITIES OF THE U. S.

12 Months Ended June 30:	*1940*	*1941*	*1942*	*1943*
Gross Revenues	$2,213,000	$2,372,000	$2,539,000	$2,713,000
Taxes	378,000	462,000	575,000	670,000
Taxes as Per Cent of Revenues	17.1%	19.5%	22.6%	24.7%

* An important, but frequently overlooked point, is that the tax ratio of private companies is the ratio of taxes to gross revenues *including taxes* and in any comparison with tax-exempt public bodies, a somewhat involved arithmetical computation must be made. In the case of these TVA distributors, the calculation is as follows:

Gross revenues	$34,670,332
Subtract taxes	1,957,614
Revenues less taxes	$32,712,718

Divided by 100% less 24.7% or 75.3% this equals $43,443,185
Taxes are 24.7% of this number, or $10,730,465

POLE TOP RESUSCITATION INSTRUCTION MANUAL

Demand for the Pole Top Resuscitation Manual, prepared by the Accident Prevention Committee of the Edison Electric Institute, has made three printings necessary in the past three months. Copies are available at the following prices:

Single copies .....10¢ each
10-49 copies ..... 8¢ each
50-99 copies ..... 7¢ each
In lots of 100 or more..$6.00 per 100

(Text of this manual was reproduced in the October issue of EEI BULLETIN)

Orders should be addressed to the

EDISON ELECTRIC INSTITUTE
420 Lexington Avenue, New York 17, New York

Some Philosophical Observations of Miss Sarah Sheridan

ON OPPORTUNITY (1934)

You are young, and when we are young we haven't had time for weighing and measuring. The world and life offers such a gorgeous display of splendors real and imaginary, that we hardly know what to choose. We sometimes fear to try one thing lest we miss another in our eagerness to get as much from life as possible. It is right and natural for youth to be eager, even greedy, for how else except by trying can we find what we want and what we are best suited for? Many of us fail to get all that we might because it takes us so long to realize that the possibility for experience by one individual is limited—no one can run the whole gamut of possible human experiences. For this reason, as soon as our judgment and discrimination begin to develop we should set ourselves the task of choosing so far as opportunity will allow us to.

ON LOOKING FORWARD (1941)

Because public utilities are intrinsically monopolistic, both economically and practically, upon their operators are imposed responsibilities and obligations to customers beyond the responsibilities and obligations of competitive businesses. And these are not ordinary responsibilities and obligations. This exclusive franchise carries the implication of the highest ethical standards in the conduct of the business. There should be no failure to deliver service of the highest quality consistent with collectible costs.

Rates should be as low as possible consistent with such service, and increasingly scientific operation and growing volume of business should be pursued to attain lower rates. No discrimination, favors, or advantages should be shown to individual groups of customers. It is, of course, incumbent upon a utility to take care of the small user who may not carry his full share of the cost of his service but who is dependent upon the company, and who contributes to the common good of the community. There should be no catering to, or tribute to, prestige and power of any ilk. There should be reasonable and fair-minded cooperation with other interests of the community.

Miss Sheridan was one of the first women in this country to be elected to an important executive position in a large business when, in 1921, she was made a vice-president of The Detroit Edison Company. Sales manager of the company for many years, Miss Sheridan plans to retire in March.

Employees of the sales department recently presented the company with a full length portrait of Miss Sheridan, from which the above picture was made.

Further, because of this exclusive franchise and also because of the technical nature of the service, it is the obligation of the operators to see to it that the customer may conveniently and cheaply utilize the service which he wishes to purchase. He should be protected against high cost of repairs to his equipment. And with all this there is the "noblesse oblige" that requires that we shall deal with our customers and our community relationships and other businesses with courtesy and understanding.

It's a new world. It's a new world every day—just as it has been a new world every day since the beginning, because yesterday someone painted a better picture, wrote a better book, discovered a new scientific law, or invented a better way.

ON CUSTOMERS' SERVICE (1936)

All of our work originates with or develops from these 12 million transactions with the company's customers—day in and day out we do the same tasks in the same manner for different people. To us these matters become routine—but to the customer his transaction is a particular affair. To us it is like a thousand others—to him it may be an event. We have so many dealings alike or similar—the customers seem to be alike and we think of them as the "public"—sometimes "our public," other times a little derisively as "the dear public." They are "our public" and our "dear public" for without them we would have no jobs, and the more there are of them the more need they have for electric service—the more there are of us. We are mutually dependent.

But thinking of customers as the public tends to make us too perfunctory in our dealings with them. Who are the public, anyway? You and I and our neighbors and your father-in-law, and his cousin, and the man in the next street, etc. The public that we serve are just thousands of repetitions of the persons in this room, and if we think of all of these people with whom we deal as individuals like ourselves, instead of somewhat hazy figures lining up one after another to be dealt with according to certain routine, we will do much more satisfactory work. You who meet dozens of people daily or talk by telephone to scores, cannot help but see some of them in the twilight zone. But the other party, remember, feels quite in the sunlight and expects to be treated so.

ON MEETING PROBLEMS (1925)

Sometimes I am afraid I sidetrack them. But here again because of the great volume of the business, it is necessary to systematize even our problems. We are dealing with thousands of questions each day and we must perforce have some procedure. People and activities must be taken care of without loss of time either for ourselves or others. Many matters which seem problems to the other interest in the case, are matters of routine with us, having an established manner of handling. When a case is not

a routine one, often there is precedent to fall back on. If it falls into neither class, someone has to make a decision. When matters of this nature come to me I analyze the elements in the problem and do the best I can with them. There is usually a personal element to be dealt with. Frequently there are technical or practical considerations. There are always the equities to be considered. As to the technical and practical elements—in any problem these usually have to be dealt with according to rules and laws. There may be a choice and one's judgment is then called into play in making the choice. In dealing with the personalities and the equities, one has greater responsibility. In The Detroit Edison Company all who take responsibilities have been trained to look at the equities and to deal with them honestly and faithfully regardless of the company's interest or their personal feeling.

We all have had the experience of intuitive judgment. If we could always act intuitively our problems would be simple, but we cannot always do so. While our intuitions seem true to us, they are not always true for someone else and there must be weighing and balancing of somebody else's point of view and of the circumstances surrounding a problem. It is weighing the elements and the consideration involved and the recalling of past experiences in similar situations that develop the quality of judgment that enables any of us to deal with problems.

I almost believe that the chief aid to exercising good judgment is the ability to look at a problem from the other person's point of view, as well as one's own, and to put one's self in his place because by so doing you gain a more complete knowledge of the problem. His point of view may gain for you a vision of the question that you did not have before or if you have considered it in all its aspects you may not have *felt* it as he has, and he helps you to find the solution. If one is called upon to make decisions affecting another person's affairs, it is well to remember Job's cry, "If your soul were in my soul's stead."

ON EMPLOYEE RELATIONS (1930)

Some employees do routine work which gives them no opportunity to see the business as a whole. They can consider only such things as affect them. This routine worker is in a narrow sphere and lacks the experience to help him to see the other man's situation. He cannot see that his value is the minimum value, that there are many people of his kind in the world, and therefore his employer can replace him easily. All he knows is that he puts in a good day's work. He is willing to work and he feels that he is entitled to work—sometimes he is inclined to measure his value by his needs. But for any employee, from the most important to the least important, there should be an honest day's work given for an honest day's pay. That is only just. Aside from that there is the relation of the employee to himself which is very much more important than is the relation to his employer. It is that he shall do the best that he can for himself. To do this means he must, as far as his intelligence will allow him, give intelligent work. He should use his work, whatever it is, to develop the best that is in him—all of his capabilities. There is nothing that develops one so much as well-done work, and if he will do his modest task to the best of his ability he gives himself the chance for the next better job. It is the same story of being faithful in a few things in order to become ruler of many. This is a personal responsibility that should not be overlooked by any employee. The gifts that they have are God-given gifts and should be used for the development of the individual regardless of whether ample pay and appreciation is forthcoming. One's full duty to oneself is the good measure of one's duty to one's employer.

I know a wise, good and successful employer of many people. I asked him what in brief he thought was a good creed for an employer, and he said, "The words of Micah the Prophet, as to what is a man, are good enough for me." And then he quoted, "And what doth he require of thee, O man, but to do justice and love mercy, and walk humbly before thy God." I considered these words for a little and then thought that they are an excellent guide for an employer and equally good for an employee.

Laura McCall Award Offered Again for Achievements of 1943

AGAIN this year the Laura McCall Award will be administered by the Edison Electric Institute.

Those familiar with this annual competition should note the following changes in the Terms and Conditions:

There has been an increase in the amount of the cash prizes over former years.

The basis of merit has been more closely tied in with the war effort and with the encouragement of maintenance of electrical equipment in the home.

The simplification of Reports is requested. The inclusion of one set of all photographs of Home Service in action, and of advertising and other exhibits indicating methods used for public information and contact, will be helpful to the judges.

The McCall Award is offered through the Edison Electric Institute to the private utility operating companies and to individuals in those companies who have made during the calendar year 1943 the most outstanding contribution to the war effort, through assistance to Government Bureaus in furthering the Nutrition story and its relationship to the health of our civilian population; in emphasizing the importance of the care and maintenance of electrical household equipment; and in general, advancing the benefits of efficient electrical living in the home.

The award is named in memory of Laura McCall, who was for many years the head of *McCall's Magazine* and who was a pioneer in recognizing the contribution that labor-saving equipment can make to the health and happiness of the American woman.

The Prizes

First Prize—To the Home Service Department—a Plaque on which the name of the winning department and company will be engraved each year. The original Plaque will remain in the possession of the winning department for one year. A duplicate of the Plaque will be presented to the winning department for permanent ownership. To the Home Service Director or Directing Head of the Home Service Department an individual prize of $150.00 in War Bonds and Stamps is to be awarded.

Second Prize—To the Department—a framed Illuminated Parchment for permanent possession; to the Director or Directing Head, $100.00 in War Bonds and Stamps.

Third Prize—To the Department—a framed Illuminated Parchment for permanent possession; to the Director or Directing Head, $75.00 in War Bonds and Stamps.

Fourth Prize—To the Department—a framed Illuminated Parchment for permanent possession; to the Director or Directing Head, $50.00 in War Bonds and Stamps.

Fifth Prize—To the Department—a framed Illuminated Parchment for permanent possession; to the Director or Directing Head, $25.00 in War Stamps.

Competitors for the award should submit *four copies* of a report of 2000 words or less (with *one set* of any appropriate photographs pertaining to the results if desired) covering four classifications, to which the indicated weighted merit rating will be given by the judges.

Additional details concerning the *award* may be obtained from the Edison Electric Institute, 420 Lexington Ave., New York 17, N. Y.

General Observations on Flood Causes and Control

Particularly with Reference to the Missouri Valley

By D. W. Snyder, Jr.

President, Missouri Power & Light Co., Jefferson City, Mo.

At a recent meeting of a group interested in the subject of post-war planning to provide jobs in industry, the subject of flood control was mentioned. Incident to that discussion the writer made the statement that more good would be accomplished if instead of building more and higher levees, some of the present levees were cut. This statement and some other views expressed seemed so startling to some of those present that I was asked, because of the present public interest in flood control, to reduce my ideas to writing. Thus this article, based on many years observation on so-called flood control and its effect on the general economic life of our nation.

Flood damage cannot be entirely eliminated any more than losses from fire have been eliminated by the introduction of fire proof construction, modern fire fighting apparatus and fire prevention campaigns. Flood damage, however, can be minimized and kept within reasonable bounds. The methods of control used in the past, however, have been directed largely against the effect rather than to correcting the causes of the floods. If success is to be assured the methods of attaining flood control must be changed.

In thinking of flood control the public mind has generally turned to levee construction. This was and is quite natural because history records that the first barrier to river overflow was a program of levee construction. This great country of ours was first explored by the early pioneers who voyaged along our great inland streams. These streams later became the new nation's highways and were used to carry most of the merchandise and supplies then being moved to and from the new settlements, the more important of which were located on the inland waterways.

In order to improve these inland rivers for navigation, the government by early acts of Congress, provided money for the removal of sunken trees and snags and also to deepen the channels by removal of obstructing sand bars. Later in certain stretches of the rivers, levees were built first under the guise of aids to navigation but, later on, avowedly for the control of floods rather than as an aid to navigation. As higher and higher flood crests appeared the demand increased for higher and higher levees. Little or no thought was given to the causes creating these higher crests and the more frequent recurrence of them.

In the last decade under the cloak of flood control which had great popular support, and of navigation which had become less popular, Congress was importuned and finally passed various enabling acts providing for navigation, irrigation, flood control, etc., including the building of huge dams for the production of power. The most widely known of these all-purpose projects is the TVA. Thus the public power group was able to secure the expenditure of vast public funds under the guise of flood control and other objectives for the construction of a number of huge high dams and power plants.

The cause of disastrous floods in the Osage River Valley in the spring of 1943 was attributed by many people to Bagnell Dam. This dam is a high power dam. I hold no brief for the Union Electric Company which with its own money built and has operated this dam for power purposes. Had the officials of that company known in advance that an unprecedented rainfall was impending on May 7, 1943, they probably would have been glad to lower the level of the water in the dam and thus utilize a goodly portion of the stored water in the lake for the generation of power, knowing that a big rain would immediately re-establish their storage supply which ordinarily must be kept intact to safeguard an adequate supply of power for their system. Had they withdrawn this water, however, and the big rain did not materialize the resort owners and fishermen as well as their unprotected power customers would have been just as vocal in their complaints as the irate farmers who had their crops flooded. The fact is that other stream valleys in which there were no dams, in the same area of that heavy general rainfall, also had devastating floods. The Moreau River valley, for instance, was completely inundated and had the same destruction of crops. So it is clear that Bagnell Dam was not the primary cause of the Osage Valley flood.

The Missouri State Legislature has created an investigation committee to investigate the effect of the operation of this dam on the region below the dam which suffered grievous damage from this flood. Its report may set at rest the belief that high power dams can be effective in prevention of floods. Such single dams may, however, by their operation, to a degree, influence the effect of floods but such influences cannot be definitely planned in advance without impairing the utility of the dam for power purposes.

Although contrary to the belief of many, the high dams built and operated for power production cannot be a major factor in the control of floods. A dam built to produce power must be operated with a full reservoir, and thus cannot provide capacity for an excess flow of water. If protection downstream is the object then the reservoir must be empty when the flood occurs in order to catch the excess water. This seems so elementary that it is difficult to understand why the public and members of Congress can be taken in by the promises of the advocates of the so-called dual-purpose high dams. The writer some years ago visited the city of Dayton, Ohio, shortly after one of the terrible floods, from which it used to suffer, had ripped through its business district. The destruction and wreckage after the water had subsided was terrific. Today Dayton is safe against a recurrence because that city followed the common sense plan of building a number of upstream reservoirs that are normally kept empty. In order to set at rest the question of why not also produce power they have an inscription at each dam to the effect that the use of the dams for power purposes would menace the city they were built to protect.

As an illustration of the absurdity of the so-called dual-purpose dam, one has only to turn to the results on the $25,000,000 Pensacola Dam on the Grand River in Oklahoma, which dam failed so miserably under its first test. There has been so much in the papers about this fiasco that it is unnecessary to repeat the story here.

To place reliance on large non-power reservoirs to prevent floods is likewise futile, although such dams are being advocated and some have recently been built with government funds. Prior to the Neal Deal era the Army engineers were not in favor of such projects because of their huge costs and then flatly declared, as the record will show, that such a method of control was impractical. They advised that a partial control by such dams was feasible but explained that the cost involved removed the big reservoir method from consideration as an economical method. There have been proposed in the state of Missouri some twenty odd large reservoirs which if constructed will cost hundreds of millions of dollars and inundate some hundreds of thousands of acres of the finest and richest farm lands in the state. These reservoirs, if built, will hold back water from other states but will periodically inundate vast acreages of Missouri's best lands, force the removal of families from their ancestral homes and, incidentally, destroy natural life and recreational facilities on most of Missouri's finest streams. Built to catch flood water, the reservoirs must be quickly drained to make room for the next flood so that no established levels can be kept and as a result no vegetation or fish life could possibly survive. In the Missouri Valley such dams are subject, also, under the past methods used for flood control, to the rapid filling up with silt which would soon end their effective usefulness. The effect of a series of big dams would be much the same as in the Tennessee Valley where the TVA has actually submerged approximately one million acres of land under its string of dams as contrasted to a maximum inundation of only 540,000 acres of land during the time of the greatest flood in that valley.

When Fort Peck Dam was built at a cost of $125,000,000 its announced purpose was to control the flow of waters in the Missouri River thus being an aid to both flood control and navigation. Of course, a power development was included. Before the dam was completed President Roosevelt, incident to a speech made in that vicinity, promised the then drought afflicted farmers water for irrigation to be taken from this great dam. A layman can readily see that the same water cannot be available to maintain a minimum channel in the river for navigation and at the same time be utilized for irrigation. So far as I am able to ascertain, Fort Peck has been primarily used to produce power. Its failure to eliminate floods in Missouri was proved by the almost all-time record floods of the summer of 1942. It is thus evident from the examples cited that big dams and reservoirs are not either the sensible or the economic solution for flood control.

Levees have aided flood control in the areas in which the levees extend. Levees, however, are not the broad answer for several reasons. As time goes on successive floods have brought higher and higher crests and unless the height of the levees are continuously raised they will be eventually breached by the waters of the rivers impounded between the dual lines of levees. Where that happens the levee system, instead of being a wall of safety, is breached and in one wild rush of water causes untold disaster to property, life, stock and the inhabitants which cannot be avoided except by precipitate flight.

The various multiple-purpose programs advanced for flood control and other objectives usually includes navigation. No one has ever questioned the advisability of flood control if it could be secured by a reasonable expenditure of public money. River navigation, however, has had some opposition, largely accredited to interests friendly to the railroads. As long as the plans were limited to the Ohio and lower Mississippi Rivers there was considerable justification for Federal financial aid because those rivers already had a fairly deep and well maintained channel and there was considerable tonnage of freight available for water transportation. These rivers also were lined by a large number of fairly large towns and cities that were river-minded because their early growth had been founded on and fostered by the old river traffic. The freeze-up season was also comparatively short or entirely non-existent on much of this river mileage. Even with these natural and historic advantages the river traffic would in all probability have ceased entirely even in these stretches if various government subsidies had not been brought to its aid. New impetus is now being given to river navigation in the upper reaches of these rivers. The plans call for deeper channels, levee construction, etc. The recent great floods in the Missouri Valley have given this program great impetus because of the promise of flood control. A series of meetings have been held under the auspices of army engineers and state and federal officers to boost the plan in the interest of navigation, flood control, irrigation and also some electric power for operation of irrigation pumps.

A comprehensive plan for flood control is needed and should be worked out but the usefulness of the expenditures being contemplated for river navigation is very questionable. As a boy I saw the well equipped and once vitally needed canals make way in favor of the railroads. Canals that once handled practically all the coal from the anthracite mines of the Lehigh Valley to the great cities situated on Tide Water simply ceased to function in the face of railroad competition, although all of these canal facilities, including locks, boats and equipment, were still intact. As a young man I saw how the once proud packet steamer business had been reduced to a trip once or twice a week by a tramp steamer stopping almost anywhere along the bank of the Mississippi to take on a few sacks of wheat or a crate of hogs. Left to itself the traffic on the upper reaches of the rivers was doomed because it simply could not justify itself economically. The sins of the pork barrel in inland navigation in the past were legion and it does not seem wise to continue to repeat them because every uneconomic step in river navigation seems to breed the necessity for another one. For instance, in 1902 an original appropriation of $250,000 was made to construct a lock and dam on the Osage River fourteen miles east of Jefferson City. This construction, like many others, did not progress according to plan as the dam washed out and it was not until 1914 that it was entirely completed and ready for service at a total cost of $728,000. Since that time it has been maintained and operated at government expense although there is no commercial navigation on the Osage, nor any likely prospect of such. Nevertheless, because this river is classed as a navigable stream, when the new bridge on U. S. Highway No. 50 was constructed over the Osage, it was necessary to build a draw span in that bridge so that a boat could pass, if a boat ever did come up the Osage. This span added greatly to the cost of the

bridge and adds to its annual maintenance. I am informed it has not once been called into use during the 21 years it has been in existence. The annual charge for the extra maintenance and interest on the extra investment has, however, accrued regularly each year to the taxpayers of Missouri. This example shows how an expenditure for navigation may become not only a burden in itself but often brings other unnecessary burdens in its wake. Before leaving this subject of the big proposed program for the Missouri Valley which is getting widespread support because of its relation to the recent big floods, it is well to mention that a similar program is being advocated by another group of army engineers for the Columbia Valley. The proponents of these plans talk of a comprehensive watershed plan. These plans are in fact a part of a nation-wide program largely sponsored by the Public Power Group, many of whom are interested in socializing America. The writer readily agrees that a comprehensive plan is the correct approach but so far such designated government sponsored plans have only too often resulted in vast expenditures of public moneys, mostly for the large power projects and with no appreciable reduction in floods. The bill for a comprehensive plan for the Missouri River should be so drawn that those entrusted with its execution should deal with the cause of the floods and not merely to control the passing of the flood waters. Preventive measures are essential as well as protective measures if the flood menace is ever to be effectively controlled.

Floods are caused by the excess run-off of rain and melting snow. The excess run-off is largely the result of man's lack of foresight and judgment. You will note the use of the word "largely" because floods do occur in regions that are still untouched by civilization's handiwork. Flash floods, due to local downpours cannot be avoided, but those are outside the scope of this article. In the Mississippi basin, however, where rainfall is moderate and not too seasonal, many of our floods are partly the result of man's action. It took time to create the conditions conducive to our frequent recurrent floods and it will take time to repair the damage or to build corrective measures because it is not practical or possible to repair now all of the man-made causes of floods.

One of the chief contributing causes of our more modern floods has been the great number of drainage districts. The states have passed laws empowering the formation of these districts and making it quite easy for a small group, often inspired by the engineers, contractors and bond sellers, to create these districts. The immediate local objective of such districts at the time seemed most laudable. In Missouri a drainage district may be formed by the owners of a majority of the acreage in any contiguous body of swamp, wet or overflowed lands or lands subject to overflow, situated in one or more counties in the state, for the purpose of having such land reclaimed and protected from the effects of water, for sanitary or agricultural purposes, or when the same may be conducive to the public health, convenience or welfare, or of public utility or benefit or otherwise. Most of the above wordage is window dressing so far as the average drainage district is concerned. The average district is formed in order to bring land into cultivation and thus augment the value of that land.

The financial history of these districts has been pretty spotty but in every case these lowlands which were nature's reservoirs for excess run-off were changed forthwith from a valuable safety factor in flood control to one of the worst contributors to the flood menace.

In the great Illinois valley there used to be a great number of so-called lakes which were in reality back water reaches of the Illinois River. These marshes and lakes teemed with fish and provided wonderful breeding grounds for both the rough and the game fish then inhabiting those waters. It was a favorite haunt of the bass fishermen during the late spring and summer and the happy shooting ground of the duck hunters in the fall. Then came the promoters and these valuable wild life lakes were drained. The contractors and engineers made their profit and moved on. The farmers who owned the land found that the bond interest must be met, that unforeseen expense appeared and many of the districts as a result had to be foreclosed.

The public, which had not been consulted, lost its fishing and hunting. Commercial fishing, which had flourished and which had amounted to important annual totals in both poundage and dollars, soon went into complete decline because the breeding places for the fish had been destroyed. The people down the river were burdened with much more and higher crests of water during their flood periods.

In the southeast part of Missouri similar drainage districts were formed. In one of these districts some 500,000 acres were drained at a cost of over eleven million dollars. This district did not work out as the promoters promised. As a result many people lost their land or their money or both. The bond issue after default was later refinanced by the RFC but the original bond holders received less than 30 cents on the dollar. Many of these bonds were held by small banks in southeastern and central Missouri and added to their financial troubles during the depression. This large project, besides being a financial failure, again added to the flood problem by hastening great masses of water from this vast area into the main river.

In a proposed comprehensive plan it seems that serious consideration can profitably be given to the cutting of such levees and letting some of these districts go back to their natural state. From the standpoint of economics, it would probably be cheaper for the government to buy the flood rights to these lowlands than to expend vast sums in building new dams to catch excess run-off. The restoration of wild life would be an additional advantage if this were done.

One of the great causes for excessive run-off has been the gradual reduction in the forest areas. Hillsides have been denuded of their timber covering first and in some cases even of their native grass protection. Thousands of acres of such land have become seriously eroded and are now of very little value except as the basis for a plan of reforestation. The general public and the land owners are becoming more fully aware of this contributing factor to the water run-off and would probably cooperate if the proper governmental support were given to this very important phase of flood control. The practice so widely followed in certain sections of setting fire to the remaining timber and even of grazing lands in the spring on the theory it produces better pasture, is harmful. This practice kills much small game, retards forest growth and greatly lessens the ability of the land to retain water. Forests, however, do not entirely prevent run-off of water during periods of heavy rains. There will be some run-off but although the forest streams rise the water in them does not become muddy, thus proving the absence of erosion, and it is very unusual for such streams to leave their natural banks. The rise in streams in forest areas is gradual and

the excess flow is stretched over a much longer period of time, all of which tends to prevent floods.

Many excellent articles are appearing in the press and in agricultural and other journals on the subject of erosion and its cure by proper farming, contour plowing, crop rotation, strip cropping, terraces, etc. If generally adopted by all farmers such practices would practically eliminate erosion which in turn would minimize both the run-off and the silt content of the run-off.

The changes in farming due to modern methods have added to the run-off in many little ways. The average farm today tends to specialize rather than to follow the older system of each farm being largely a self contained unit. Many modern farms no longer consider a wood lot a necessity. They burn coal or even electricity. This is largely because new roads and a gasoline truck make it convenient to get coal. Many farms do not have an orchard which was always part of the makeup of a farm in the old days. Many farms have ceased to keep the usual small herd of dairy cows and many farm horses have been replaced by the tractor. This reduction in the number of head of livestock has reduced in many cases the acres kept in pasture. Because of tractor operation the size of fields is now larger. These were made larger by the simple expedient of removing division fences. Even the types of fences are changed so that less untilled land is left in the fence rows to the detriment of the wild life. All of these changes, small in themselves but great in the aggregate, tend to decrease the farms' absorption of rain water and thus adds to the excess run-off. In addition to these changes in the makeup of the small farms, there have come into being great aggregations of acreage that are farmed as a unit by the use of large tractors, combines, etc. These vast areas have still less facilities than the small farms for resisting run-off. The great dust bowl that was caused by the breaking up of the protective buffalo grass is illustrative of the damage that can be done to great unprotected areas by both flood and wind erosion.

Another great contributor to excess run-off and incidentally often to farm erosion, is our splendid new highway system. When we pulled the highways of the great western states out of the mud we also created a brand new drainage system. Good drainage is the very foundation of road building and good maintenance cannot be had without good drainage. Our highway engineers have rightfully insisted on getting good drainage but did they have the right to dump such vast quantities of new water into the streams? The main highways were largely built with Federal funds and thousands of miles of secondary roads have been widened and rebuilt with PWA and other funds. Many of these new highways do not follow the old contours but cut into and across the hills making new and short water courses to the streams below. Many a bad gully across a farmer's field has its origin in waters diverted from a new highway onto the farmer's land. Should not a part of each of the generous grants from the government for road building be earmarked to be expended for small flood control catch basins and other devices to prevent local erosion caused by the road building and thus prevent the added flood menace during times of long periods of rainfall? Such a provision seems not only fair but very essential when consideration is given to the vast amount of water now being quickly shed from our highways compared to the old days when our roads and the weed filled ditches at their sides were actually major conservators of water.

Thus it appears to the writer that the most meritorious plan would be one that would aggressively attack the causes of excessive run-offs and put into motion the necessary steps to correct the damage that man has done to nature's own protection to the good earth.

Such a plan must provide for making any new venture, drainage area, public road building or any other state or federal aid project provide the necessary safeguards against adding to the flood menace. It should provide for the necessary steps toward reforestation and anti-run-off and erosion measures. Small catch dams or reservoirs in proper locations far upstream can be constructed at small cost. Such catch dams create very little loss of valuable land or damage to fish life. New navigation projects can be profitably forgotten for three excellent reasons. The first is they are not needed. Secondly, they will require vast expenditures which will not be self-sustaining and the third is that with the present use of motor trucks and the advent of air transportation the type of traffic that the rivers will carry can be better handled by the railroads. The rail carriers have by their magnificent job in handling the war traffic justified their continued existence and should be spared any more government subsidized competition. The alternative might be a crippled rail transportation system sandwiched in, as it will be, between air and water, plus a land competitor which operates on a government built right of way, not to mention the new transcontinental pipe lines constructed by government funds. The money saved in passing up water transportation, which at best is slow and seasonable, can be used to advantage in bringing about the before mentioned needed preventive measures.

If navigation is eliminated the tremendous cost of building and maintaining a great system of dykes and levees can be saved. Pending the effectiveness of the plans, proposed relief in the lower stretches of the river can be assured by emergency spillways into emergency reservoirs. This can be arranged by purchasing flood rights in certain areas behind the present levee system. It would be cheaper to do this than continue to raise the entire levee system. By cutting spillways through some of these levees safety to the balance of the levee system will be assured. The land thus periodically flooded will not be entirely lost as it can be used for grazing and even short term crops during such seasons when the spillway protection is not required.

Pending the application and effectiveness of other corrective measures, it would in many cases be cheaper to the taxpayers in the long run and more equitable to the land owners to pay for flood damage than attempt to protect all the land from flood by levees. By eliminating navigation altogether much of the present expensive annual river work can be saved and the numerous plans for straightening and shortening the channel can be dropped. Every time the channel is straightened it adds to the rush of the water down stream and adds to the flood menace down stream. Everyone is familiar with the example of a brook meandering through a meadow without any erosion or wash. If the course of this brook were straightened the brook would become a race way and wash would begin. Thus every effort in straightening river channels usually tends to greater flood down stream.

When flood waters are allowed to spread out in the upper reaches much of the danger from that flood is saved

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Utility-Dealer Relationships in Postwar Selling

By C. E. Greenwood
Commercial Director, Edison Electric Institute

Presented before Postwar Session, National Retail Furniture Association, Chicago, Ill., Jan. 17, 1944

THE subject of this comment is expressive of a two-way responsibility in offering to the public the benefits of electrical living. In no previous time has public acceptance of essential electrical equipment — particularly, laundry, refrigeration, cooking and heating appliances and radio—been at greater peak. Such appreciation must be maintained as a basis of approach to the post-war market.

There is a pent-up demand for the replacement of hundreds of thousands of electric servants that have functioned well but are just worn out, and thousands more in the out-moded class to be superseded by equipment of improved performance and design. A peacetime army of young married couples will start life anew in several hundred thousand small homes. Every one will be furnished. Will they be sold their electrical equipment where they are sold their other furnishings? One cannot mistake selling opportunities already on the Victory horizon, and post-war committees of retailer groups desiring to share the electrical market may well be working on their blueprints for business-building in those days ahead.

Utilities and dealers constitute an auxiliary force to the manufacturers in the economics of distribution. In the marketing projects of both groups, therefore, it is essential to reckon with manufacturer plans and policies, and to ponder a few situations affecting post-war markets. We ask how soon will manufacturers catch their stride in civilian production? Will they start production before the final battle is won? Does the rumor that restrictions on production quotas will persist for a limited period following the war have foundation in fact?

We may speculate on how soon future buyers of our wares whom we are told hold an accumulation of billions of war savings, will rush into action. The much quoted Chamber of Commerce survey indicates that 1,750,000 families intend to use their War Bonds and other savings to buy a new refrigerator. Looks like cash on the barrel-head, but offsetting such prediction one reads comments in Consumer Banking Institute bulletin as follows: "Despite evidence that many people intend to make extensive major purchases after the war, most people are not—on the basis of present saving—counting on buying these things for cash. The public will continue to buy War Bonds and will hold on to them after the war as a reserve. The American habit of instalment buying will continue to be a major factor in large consumer purchases."

We may expect a wider interest among finance companies in bidding for this consumer credit. There is indication that commercial banks will enter this field in greater number. Experience has revealed that the financing of electrical equipment is a stable business, and the debit slate has been very well cleared in the past two years. Price of equipment is an influencing factor on terms. Some predict lower prices for electrical equipment, others see higher prices because of increased costs of production and distribution and refer to buyer strikes—perhaps.

Whether conditions after Victory will raise prices of equipment above 1941 levels, or whether there will be a happy opportunity to lower them, I can find no urge on the part of the utilities at this time to extend time payments beyond what is considered sound practice. The subject of Terms is one of the leading post-war considerations of electric companies and a joint committee of representatives of the Edison Electric Institute and the American Gas Association is about to make a survey of opinion on this matter. I would express a personal opinion that utilities that may sell equipment direct will not follow a policy in financing which could be challenged as unfair competition.

Again we ponder on how the electric retail-trade will fare under rationed supplies in the event of continued restrictions on production, and how soon will the desire for replacement of old equipment gain public expression if there is promise of models drastically new in design and effectiveness just around the corner? Retailers should keep their ears to the ground for answers to these questions to guide in making sales plans for the immediate peace-time months.

Then we might throw two more queries into the hopper. What changes in distribution practice may be brought about through interest of national "chain" outlets in electrical household equipment? Here is a new, but not necessarily a disturbing element in competition. And to those dealer representatives here who serve markets in rural areas another leading question—How will you be affected in your appliance trade should the REA scheme of distribution to cooperatives prevail, or something equally shattering to orthodox practices.

Now the purport of this trend in thinking is to place emphasis on the advantages of utility-retailer cooperation as a help toward stabilizing the electrical merchandising business in any community. All retailers usually welcome the activity of the utilities in plowing and making more fertile markets for electric household equipment of all classes in the low saturation group in which you will share later profits. Such items are electric ranges at 13 per cent; water heaters at 4 per cent; ironing machines at 6 per cent; and room coolers in the pioneering stage. An expansion of the lines sold by utilities if on economically sound principles, can be equally acceptable. It is my conviction that retailers may be assured of utility cooperation under any operating policy.

Please do not be misled by rumors of stupendous spare capacities in all utility generating stations which will prompt all-out selling on old-time utility load building methods. I would dismiss this premise with brief comment, and with a different conclusion. The privately-owned utilities have added 5,250,000 kw of new generating capacity since the war began in Europe. On Dec. 31, 1939, the total was 33,900,000 kw, which means total private capacity now exceeds 39,000,000. The Federal Government has added 3,350,000 kw to the 2,000,000 kw previously installed, but even then only 11 per cent of total generating capacity in the entire country is in Federal plants. The striking feature of power

supply in 1943 over 1940 is an increase in energy output of 25,000,000,000 kwhr, produced by all sources, for metallurgical power loads alone. A considerable percentage of that amount is furnished by Government plants.

Now, without question there will be load losses in this field. Also, the private utilities in industrial sections may experience a substantial loss in energy sold, but those who would reason from rumors of an impending scramble on the part of the utilities for residence load should understand that substantial amounts of commercial business will be regained as Blackouts and Dimouts become things of the past and the nation lights up for Victory. Your stores will celebrate with light. Air Conditioning service will be restored and expanded.

It is further pertinent to this explanation that residential business has increased almost 25 per cent between 1940 and 1943. Utilities have a continuous job in building up greater use of electricity in the homes of their consumers. Equipment must be sold, and it must be utilized by the purchasers before there can be revenue to the utility. Now you of the furniture trade, like other retailers, are concerned with the method that may be applied in obtaining these results. A basic policy is indicated in a recent statement by Mr. M. E. Skinner, vice-president, Buffalo, Niagara and Eastern Power Corporation, and chairman of the Commercial Planning Committee of EEI, as follows:

"Business-managed utilities have been great believers in the effectiveness of cooperative activities. They recognize the importance of the retailer in the field of appliance distribution and I am sure they will continue the pre-war trend toward more and more cooperation with them."

I would refer right here to a recent survey of probable post-war merchandising plans among 389 utility companies which brought 202 replies, covering approximately 17,000,000 meters or about 64 per cent of the 26,500,000 residence customers as of Dec. 31, 1942. Of this group there were 169 on record as selling equipment in 1941, and 138 of that number expect to continue the same policy in peace time. Every one intended to develop cooperative sales plans. There were 22 companies that were undecided on policy, and 12 said they did not expect to continue to sell. Granting that those with most zeal for the subject of any survey send in their replies, I think the results represent a fair cross-section of future action.

We may assume that the majority of the other utilities will aggressively promote the sale of equipment only, with dealers of all classes sharing the market in accordance with the power of their respective sales forces.

Although personally not impressed by the numerous surveys indicating buying preferences, we know they do constitute good advertising and public relations. But cannot effective selling by Johnny-on-the-spot representatives change these minds? The electrical industry, and all retailers of electrical equipment, including chain stores, can work together to turn pledged dollars of the consumer into electric dollars. Whatever policy obtains in the communities in which you are located, it would be an advantage to be organized to cash-in on a more expansive electrical market than has ever existed before.

Utility companies have viewed with concern the mortality of many dealers during the war period. Realizing the smaller dealer was denied his profit on sales of apparatus, attempt has been made to direct repair and maintenance business to his shop. It has been working wonders in metropolitan areas. However, of 161 utility company representatives in all sections of the county submitting an estimate of loss of dealer outlets, assuming the war lasts into 1945, the majority guessed an average of 40 to 60 per cent.

It will be essential then that utilities appraise local conditions in post-war months and govern selling policy in the light of these conditions. Some may decide to sell a full line; others will sell only major loadbuilding items; still others may not sell direct at all. But I feel certain that utility merchandising of the future will be done on a profit basis with full encouragement of dealer coordination. As I have said before at a previous gathering of industry representatives, the "Merchandising Procedure" prepared a few years ago for better understanding between utility executives and leading representatives of the retail trades might again serve as a guide in all loadbuilding effort.

Retailers in the furniture, department store and hardware trades should be ready to serve a national market for both major equipment and a long list of smaller appliances. The war interrupted a healthy expansion of the electric range market, promotion of which had been steadily gaining momentum along cooperative lines. Ten years ago the sale of electric ranges was about on the ratio of 1 to 15 with gas ranges. In 1941 the ratio was 1 to 4. And yet national saturation of electric ranges is but 13 per cent.

Electric kitchens with cooking, refrigeration and water heating will be aggressively sold as promptly as they are available for civilian use. More than 80,000 electric ranges scheduled for manufacture this year have been earmarked for war housing. Likewise, the electric laundry will have an important place in the utility promotional schedule. The present war emergency has indelibly impressed the advantages of washing and ironing at home. The automatic washer will be the anchor of the home laundry as the electric range is in the modern electric kitchen.

These major services in the ensemble class will be promoted and sold cooperatively and the door will be open for retailer participation. Potential sales of this major equipment, together with electric cleaning and table cookery appliances and radio will register volumes commensurate with the planned program of the individual outlet.

Speaking to you in this spirit of cooperative action to serve the electrical market, may I take this opportunity to make a few suggestions?

1. Please bear in mind cooperation works in two directions. There are some retailers who are ready to accept the benefits of cooperative selling but are not ready always to accept the responsibilities. A give and take attitude is essential in consideration of joint action.

2. It is suggested that retailers get acquainted with the commercial and merchandising executives of the local utility. The spirit of management is to assist dealers in serving the public and there should be common understanding on objectives in carrying out any utility plans.

3. One measure of value which you place on electrical equipment as a merchandising feature is indicated by the space the Electrical Department is allotted in your store and the display hours that major appliances receive in your show window. In department stores in particular, and to a lesser degree in the furniture store, such display of electrical equipment is too often a matter of negotiation. You will always see appliances in the win-

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Award of 12 More Edison Medals Brings Total Resuscitation Awards to 577

By Mae B. Woods

Secretary, Committee of Judges, Edison Electric Institute Medal

THE award of twelve Edison Electric Institute medals for resuscitation during 1943 brings the total of officially certified resuscitations from electric shock, by employees of the electric light and power industry, to 557. One hundred and sixty-three of these have been commemorated by Edison Medals; in 414 previous cases the employees who effected resuscitation received the Insull Medal of the National Electric Light Association.

In the latest group of awards, individuals or line crews in California and Pennsylvania accounted for four medals, two being presented in each of these states. Other states in which medals were awarded were Alabama, Connecticut, Florida, Kentucky, Massachusetts, Mississippi, Ohio and Oregon. The awards were made for resuscitation by both the prone pressure and the pole top methods.

Additional awards have been certified and presentations will be made shortly, while data on other resuscitations brought to the attention of the Institute are being considered by the judges for awards. The committee of judges consists of Messrs. Wills Maclachlan, Toronto, Can.; H. J. Burton, Consumers Power Co., Jackson, Mich., and W. R. Smith, Public Service Electric & Gas Co., Newark, N. J.

The judges wish to again emphasize that employees of all electric light and power companies are eligible for the Edison Medal. A certificate describing the act of resuscitation, signed by the President of the Institute, is presented with each medal and a Certificate of Assistance is awarded those who have rendered valuable aid in resuscitation. Miniature medals and certificates are also given to members of line crews who have participated in cases of successful resuscitation.

Inclusion in the medals of copper from the original two-wire system laid down in New York City in 1881 by the late Thomas A. Edison as part of the world's first underground system for the distribution of current for electric light and power, adds to their historical value.

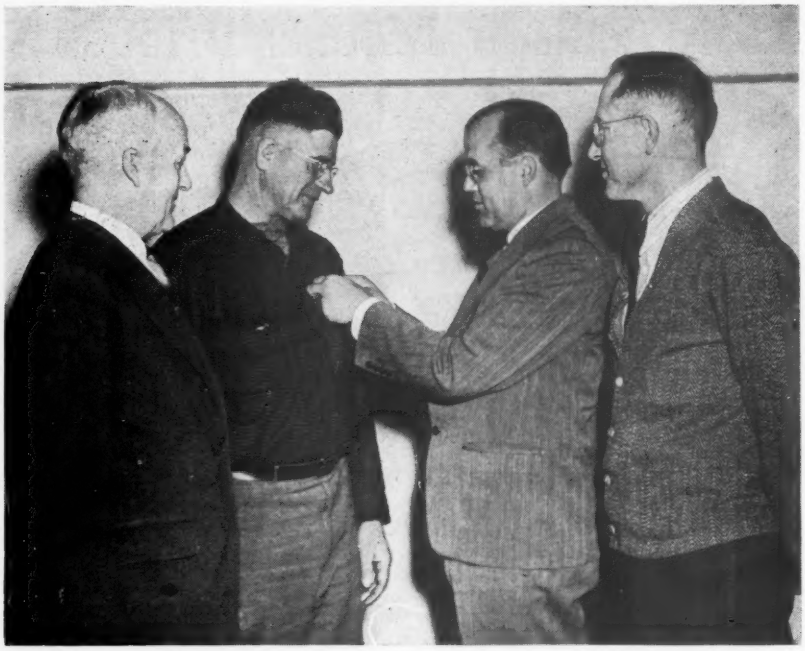
Brief statements of the circumstances leading to the awards made in 1943 follow:

JOHN ORME

Pennsylvania

On July 28, 1941, at 2:15 p. m., John Morris, a 16-year-old high school student, picked up a 2300-volt overhead primary line which had been burned down during a severe electrical storm and was lying across the pavement. John Orme, first class lineman of the Pennsylvania Power and Light Company, Allentown, Pa., was working the night shift but because of the severity of the storm had gone to the linemen's quarters at the Mahanoy City storehouse, arriving there shortly after 2 p. m. Immediately afterwards a telephone message was received that a man was caught on the wires. Eugene McCloskey, master reader, drove Orme to the scene of the accident. Just as he arrived William Seiple, Line Foreman, who had arrived shortly before, called the substation and announced that the power was shut off. Mr. Evan Rosser, electrician employed by the Philadelphia & Reading Coal and Iron Company, having

JOHN ORME, Pennsylvania Power & Light Co. Left to right: H. W. Morreall; M. W. Fox; Mr. Orme; M. L. McDevitt, Division Manager; David J. Evans; F. J. Shovlin; C. H. Klotz; R. B. Gray.



CLARENCE BROWN, Pacific Power & Light Co. Left to right: J. E. Yates, Safety Supervisor; Mr. Brown; Homer Beale, Pendleton District Manager; Glenn L. Harper.

on rubber gloves and boots, pulled Morris clear of the line and placed him in position for resuscitation. Orme immediately began artificial respiration. He was relieved after seven minutes by Lineman David J. Evans of the Pennsylvania Power and Light Company. After fifteen minutes there were signs of recovery and in twelve more minutes Morris was breathing naturally. Shortly thereafter, a doctor and ambulance, summoned by Seiple, arrived and Morris was taken to the hospital.

The Edison Medal and Certificate, and a Certificate of Assistance, were presented to Messrs. Orme and Evans, respectively, on April 29th, 1943, at a gathering of employees in the Company's Shamokin office. The presentation was made by Mr. M. L. McDevitt, Division Manager, and publicity was given the presentation in various local papers.

CLARENCE BROWN

Oregon

On June 17, 1942, Glenn L. Harper, apprentice lineman of the Pacific Power and Light Company, Pendleton, Oregon, was working on a pole with Clarence Brown, journeyman lineman, reconnecting service wire to secondary conductor. Above Harper on the pole was a pole supported circuit breaker in a four-wire, 11,500-v., three-phase circuit. While his right hand was in contact with the secondary conductor, Harper raised his head and it touched an 11,500-v. lead to the circuit-breaker bushing. He was rendered unconscious and his respiration stopped. Brown, who was working below, immediately went to the assistance of Harper, who had fallen clear of the contact and was slumped in his safety belt. Placing him in a position within one minute, Brown gave artificial respiration by the pole top method of resuscitation. In from one to two minutes Harper showed signs of recovery and in approximately four minutes was breathing without assistance.

The Edison Medal awarded Brown was presented to him by Mr. J. E. Yates, Safety Supervisor of the Pacific Power and Light Company, Portland, Oregon, on Tuesday, November 2nd, 1943. Mr. Harper was on hand to witness the presentation. The presentation story was carried in the Pendleton, Oregon, papers.

JOHN F. CLEARY

California

Early on the morning of August 11, 1942, James A. Mann, substation superintendent of the Southern California Edison Co., Ltd., Long Beach, Cal., was on his way to work in his car and when approaching an intersection in the town of Compton he saw that there had been a collision between two automobiles near the base of one of his Company's poles. He noted that a guy wire was broken and as a consequence one of the 4 K V phase wires had dropped to the ground. Fearing that someone might make contact with the live wire he parked his car to see what he could do. As he started back he heard a cry and the sound of an electrical contact. An eleven-year-old boy was walking barefooted through the grass and weeds toward the scene when he made contact with the energized wire and a nearby strand of barbed wire fencing. Mann immediately removed the boy's feet and legs from the wire with a dry, dead tree limb and had him carried from the point of contact. John F. Cleary, transmission patrolman of the Southern California Edison Company, arrived on the scene of the accident about two minutes after it had happened, and he immediately applied artificial respiration and within three minutes the boy gasped for air. He continued and within five minutes the injured breathed without assistance. An ambulance had been summoned and he was taken to the hospital.

On June 24th, 1943, Mr. Harry J. Bauer, President of the Company, presented the Edison Medal and Certificate to Mr. Cleary at a meeting of the Long Beach Division employees.

JOHN F. CLEARY, Southern California Edison Co., right, receives Edison Medal from Harry J. Bauer, President.

JOHN S. SMITH, Southern California Edison Co., receives Edison Medal from Harry J. Bauer, President of the Company.

ELBER LEE JACKS, Mississippi Power & Light Co., left, receives Edison Medal from Rex I. Brown, President.

RILMA WESLEY HARRIS, Alabama Power Co., right, receives Edison Medal from J. O. Speed, Manager of Safety of the Company.

HARRY C. KURTZ

Ohio

Willis D. Mohn, first class lineman of The Ohio Edison Company, Akron, Ohio, was working in a line gang which was transferring primary and secondary wires to a new pole. As Lineman Mohn was tying in a secondary connection his head came in contact with an uncovered primary tap at the same time that his left side was in contact with the secondary. He fell away from the contact and hung in his safety belt. Harry C. Kurtz, lineman, first class, went immediately to Mohn's assistance and started artificial respiration by the pole top method, approximately forty seconds after the contact. In about five minutes Mohn was showing signs of recovery and in approximately fifteen minutes was breathing without assistance. With the assistance of other members of the gang, Mohn was lowered to the ground and artificial respiration by the Schaefer Method administered for a short time, after which he was removed to the hospital.

Mr. L. G. Tighe, Vice-President of the Ohio Edison Company, in presenting the Medal to Mr. Kurtz on May 20, 1943, before a group of Line Department employees, remarked: "This is not the first occasion in which the man whom we honor today has proven his courage and his ability to act effectively in a critical situation. He is an old hand at that sort of thing. On a previous occasion he had the same opportunity to apply his skill in the preservation of human life and he came through in the same magnificent manner."

JOHN SHEEHAN SMITH

California

John Sheehan Smith and Leland R. Schuessler, linemen of the Southern California Edison Company, Ltd., Redlands, California, were working together on September 14, 1942, in a line crew under the foremanship of W. H. Rickson. The fourth member of the crew was G. H. Fuller. Smith was at the top of a new 60-foot pole and Schluessler was working below on a 40-foot pole which was being replaced. Schuessler was cutting a small lighting transformer clear, preparatory to transferring it to the new pole. The cutouts had been opened and the 4-kv leads to the transformer were dead. In reaching to cut one of the leads, Schuessler reached too far and started to cut the live connection to the cutout. Rickson shouted but it was too late and Schuessler cut into the hot tap. He fell clear and hung head down in his belt, unconscious and not breathing. Smith went down immediately to Schuessler's aid and Fuller climbed up. Together they placed Schuessler astride a buck arm and Smith started artificial respiration by the pole top method. After about one and a half minutes, Schuessler responded and started to breathe but his respiration stopped several times during the next ten to fifteen minutes, and in each instance artificial respiration had to be resumed. After fifteen minutes he was breathing without assistance and was lowered to the ground.

Mr. Harry J. Bauer, President of the Southern California Edison Company, pre-

HARRY C. KURTZ, Ohio Edison Co., center, receives the Edison Medal from L. G. Tighe, Vice President of the Company. A fellow worker watches the ceremony.

GAINE STIDHAM, Kentucky & West Virginia Power Co., left, receives Edison Medal from R. L. Gordon, District Manager of the Company.

sented the Edison medal to Mr. Smith on July 8, 1943, at a meeting of the employees of the Redlands and San Bernardino districts.

ELBER LEE JACKS

Mississippi

A line crew of the Mississippi Power & Light Company, Cleveland, Miss., under the foremanship of E. M. Byrd, was engaged, early on the morning of July 30, 1942, in installing a 2300-volt by-pass circuit as a temporary feed to an R.E.A. substation for the city of Clarksdale. In the gang were Claude O. Woodall, Elber Lee Jacks, James Utroska, N. R. Jennings and William Turner Poe.

Linemen Woodall and Utroska were working together on a pole installing a 2300-v. jumper and Woodall had put the jumper in place using connectors. As he reached back and into the tool bucket for a wrench to tighten the connectors his arm made contact with the 2300-v. conductor. Utroska was on the other side of the pole and heard Woodall groaning. At almost the same instant foreman Byrd called "Get him off." Utroska took about two steps up and pulled Woodall clear. Nearby was a hand line which he quickly fastened around Woodall's body and unbuckling his safety he signalled to Jennings and Poe who lowered him to the ground. Jacks had been about two spans away and returned when he heard foreman Byrd call out. He reached the foot of the pole just as Woodall was being placed in position for resuscitation and immediately proceeded to give artificial respiration until about three-quarters of an hour after the shock. Woodall was taken to a hospital. He made complete recovery with only slight scars on arm and leg.

The Edison medal was presented to Mr. Jacks by Rex. I. Brown, President of Mississippi Power & Light Company, at an employee Safety Party for the Northern Division, which was held at Moon Lake, Clarksdale, Miss., on August 6, 1943.

RILMA WESLEY HARRIS

Alabama

During a lightning storm on July 13, 1942, Mrs. Ida Baggett, housewife, was sitting in the front bedroom of the home of her friend, Mrs. Thomas G. Harris, at Ashland, Ala., when it was struck by lightning. Mrs. Baggett was seated near the radio and was rendered unconscious by the shock. Rilma Wesley Harris, son of Mrs. Harris, a groundman of the Alabama Power Company, was lying with his brother Alfred on a bed, and he also received a severe shock but was not rendered unconscious although the shoe on his left foot was almost completely demolished, his foot later showing a slight burn. Rilma Harris immediately rendered assistance to Mrs. Baggett, who was still seated in the chair, by alternately applying and releasing pressure to Mrs. Baggett's chest from the front. He effectively administered artificial respiration and in approximately fifteen minutes after the shock Mrs. Baggett gasped and in about twenty-five minutes was breathing without assistance. Throughout the entire period Harris was in a semi-dazed condition himself and did not know until later that he had been injured at the time of the lightning stroke.

Mr. J. O. Speed, Manager of Safety of the Alabama Power Company, presented the Medal to Mr. Harris on February 1, 1943, at a Safety meeting of company employees and local citizens at Goodwater, Alabama.

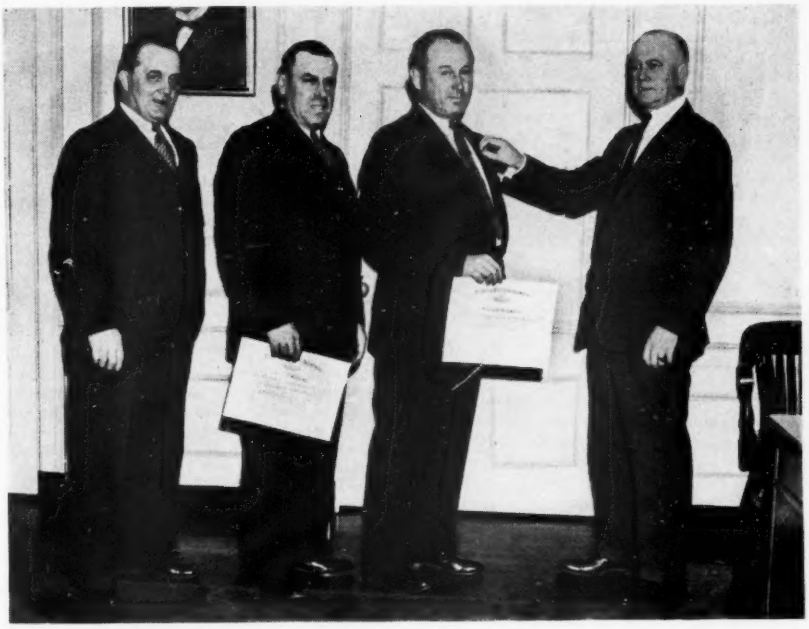
GAINE STIDHAM

Kentucky

On September 13, 1942, a group of substation maintenance men of the Kentucky and West Virginia Power Company, Inc., were working on equipment in the Black Gold Substation near Lothair, Kentucky. D. S. Burrows, electrical helper, was cleaning bushings on a power transformer, which was mounted above ground on a steel tower-like structure, at the top of which the high tension feed line was connected. For some reason which was never determined, Burrows left his work location and climbed up 6 feet higher into the structure. He made contact with one phase of the 33,000-volt circuit and fell to the ground where he lay unconscious. Gaine Stidham, substation foreman, was about 20 feet awav and went to Burrows' aid. With the assistance of a fellow worker, Sherman Young, he carried Burrows to a clear spot and started artificial respiration by the prone pressure method, Young and Bruce Back, the other member of the gang, rendering assistance. After a minute and a half Burrows responded and was soon breathing without assistance. He was taken to a hospital but died on September 16 from

ALLEN F. WRIGHT, Florida Power Corp. Left to right: Mr. Wright; G. A. Louden, District Manager; Ralph Clark; A. W. Higgins, President.

GEORGE F. BLINN, Connecticut Power Co.



HARRY P. MCCAFFREY, The Lowell Electric Light Corp. Left to right: Frank V. Mahoney; J. William Rondeau; Mr. McCaffrey; Leon E. Seekins, President of the Company.

toxemia which resulted from third degree burns.

The Edison medal and certificate were presented to Mr. Stidham by R. L. Gordon, District Manager, on January 21, 1943, at a district safety meeting.

ALLEN F. WRIGHT

Florida

In the town of Dunedin Isles, Florida, served by the Florida Power Corporation, two service men, Allen F. Wright and Ralph I. Clark, were engaged on the morning of November 16, 1942, in reconnecting a domestic customer's service. When they had completed the connection to the house they found there was no current. Inspection of the transformer installation on the pole disclosed that the 2300-v. primary cutout had been destroyed and Clark proceeded to install a new one, insert the fuse and close it. Feeling satisfied that the service was now in proper order he started down the pole. Unknown to Clark and Wright, but later found through investigation, the primary winding was broken down to the case and the neutral connection burned off. As Clark reached the point where his head was about level with the transformer on the other side of the pole, he stopped to remove his rubber gloves and put on his leather work gloves. In doing this, and as he released his safety and fastened it around the pole, his right hand touched the transformer hanger, his left hand being on the ground wire. He fell unconscious to the ground, and Wright, who was at the foot of the pole, placed Clark immediately in position and started prone pressure resuscitation. In from three to four minutes Clark responded and in another three to four minutes was breathing unassisted. He was given medical treatment and taken home to rest. He returned to work the second day following the shock.

The Edison Medal and the President's Medal of the Associated Gas and Electric System were presented to Mr. Wright by Mr. A. W. Higgins, President of the Florida Power Corporation, in the Downtown Studio of Station WTSP, St. Petersburg, Fla., in a special featured program arranged by the company as a contribution to the effort to show the importance of safety in the home and on the job and of the value of training in resuscitation and first aid. H. B. McMahon, Safety Director of the Florida Power Corporation, conducted the program and introduced President Higgins and service men Wright and Clark.

GEORGE FREDERICK BLINN

Connecticut

George Frederick Blinn and Daniel J. Wall, linemen in a crew of the Farmington Valley Division of the Connecticut Power Company, were working together on opposite sides of a pole in the town of Farmington on May 24, 1943. Wall was placing a cutout and lightning arrester and Blinn installing a ground. Wall, in changing position, raised his head and made contact with a 4800-v. single-phase wire. He fell away from the conductor and hung in his safety belt. Blinn moved quickly around the pole and in less than half a minute had started resuscitation by the pole top method. Wall showed signs of regaining consciousness in 3 to 4 minutes and was breathing without assistance in about 5 minutes.

Assistance in lowering Wall from the pole and in other details was rendered by foreman Arthur C. Ingvertsen and fellow workers, Mayro W. Miner, H. Warren Lawrence and J. A. Brouillard. Wall made a complete recovery and returned to his normal duties a few weeks later.

The Edison medal and certificate were presented to Mr. Blinn on October 14, 1943, by Mr. Samuel Ferguson, President of the Connecticut Power Company and a Director of Edison Electric Institute. Mr. Charles E. Bill, Vice President of the Connecticut Power Company, was at the meeting, which was held in the company's auditorium at its Unionville office. Mr. Blinn was also presented with an award from the Connecticut Power Company, which was made by Mr. H. Warren Lawrence, Manager of the Farmington Valley Division. The meeting was attended by members of the Farmington Valley Division and representatives of all other divisions of the company.

HARRY P. McCAFFREY

Massachusetts

Late in the afternoon of June 20, 1943, a severe lightning storm did much damage in the Lowell territory of the Lowell Electric Light Corporation of Lowell, Massachusetts. A lineman crew consisting of first class linemen Harry P. McCaffrey and J. William Rondeau were working to restore service to the Billerica Pumping Station, which was supplied with 3-phase, 2300 regulated voltage through outdoor regulators. McCaffrey called Frank V. Mahoney, foreman of substations, and the latter drove to the job.

As the circuit breakers would not stay in, Mahoney suspected that one of the regulators was faulty and McCaffrey and Rondeau put on rubber gloves and obtained wrenches and connectors to use in cutting out the regulator. The bus disconnecting switches were open.

It was now about 9:45 p. m. and dark overhead. Mahoney decided to make a voltage test on the outside regulator of the pair on the feeder to check for feedback. Climbing up on a junction box and conduit connection between the regulators, he reached out with a pencil type "statiscope" in his right hand to test the common potential supply wire to both regulators. He was not wearing rubber gloves. Just then a line truck with a spotlight focussed on overhead wires came into view and it was afterwards assumed that he turned his head, and his body slightly, was momentarily unable to see clearly and put his hand against the 2300-volt wire. There was no sound to indicate that anything was wrong but when McCaffrey looked up from his position on the ground in back of and between the regulators, he thought "Frank did not look right" as he was partly slumped over. Having on rubber gloves, he reached up and pulled Mahoney down, laid him prone and started

artificial respiration. The body was inert. It is probable that Mahoney's contact with the wire was of short duration and that McCaffrey observed him just after the shock was received. Rondeau came at once to assist and in about five to seven minutes Mahoney gasped and his jaws, clamped shut previously, relaxed. Ten to twelve minutes elapsed before Mahoney was breathing more or less naturally, having had to be helped from time to time. After a few days of rest Mahoney returned to work completely recovered.

The Edison Medal, awarded Mr. McCaffrey, and the Certificate of Assistance, awarded Mr. Rondeau, were presented at a special dinner in their honor on September 29, 1943, at Lowell, which was arranged by Mr. Leon E. Seekins, President and General Manager of The Lowell Electric Light Corporation, and was attended by approximately thirty-five men. Present were department heads, district and local safety representatives and line foremen and co-workers in the Line Department. Presentations were made by President Seekins.

SLIPPERY ROCK-BRUIN LINE CREWS

Pennsylvania

On the morning of June 25, 1943, members of the Bruin and Slippery Rock line crews of the West Penn Power Company, Pittsburgh, Pennsylvania, were engaged in maintenance work on a 25-kv. 3-phase power line which was out of service and grounded. Leslie P. Scott of the Slippery Rock line crew was in charge of the gang. Albert J. Theis, 2nd class lineman in the Slippery Rock crew, was engaged in replacing a crossarm. In changing position he was holding on to one of the grounded 25-kv. wires with his left hand and his right hand was on the crossarm when his spurs cut out, causing him to fall. He made contact on the inside of his legs with an energized 6900-v. conductor located at a lower level and in falling struck the 6900-v. conductor and as one of the wood pins broke he slid down the conductors and fell 21 feet to the ground.

Francis E. Kitch, groundman, was on the ground near the pole and heard the spurs cut out. When Theis struck the ground, and because of the position in which he fell, Kitch turned him on his back and gave artificial respiration by applying pressure in the abdominal region. Russell H. Lewis, another member of the Bruin crew, came immediately and assisted Kitch in turning Theis over in proper position for the prone pressure method and Lewis started artificial respiration. Other members of the Bruin crew, Joseph Balbier, foreman, Walter F. Schnizer, and Howard F. Easley, and also Lester P. Scott, all rendered assistance by relieving one another at five-minute intervals on resuscitation and attending to other essential details in connection with the first aid. Theis responded in about five minutes but did not breathe without assistance until 25 minutes later. He was violent when being taken to the hospital and died four hours later.

The Edison medal and certificate was awarded to the Slippery Rock and Bruin line crews and miniature medals to all the members, whose names are given above, by Vice President P. H. Powers. District Manager Fred North received the award for the combined crews. The awards were made at a dinner given in honor of the members of the crews on December 14, in the Nixon Hotel in Butler, Pennsylvania.

SLIPPERY ROCK and BRUIN LINE CREWS, West Penn Power Co. Left to right: H. F. Easley; F. W. North; F. E. Kitch; W. F. Schnizer; L. P. Scott; R. H. Lewis; J. Balbier; P. H. Powers, Vice President of the Company.

Manpower Problems

(*Continued from page* 37)

training programs must be intensified if utilities are to maintain sufficient operating forces. Employee training is particularly important because of the need in many utility jobs for relatively long experience to provide the prompt reactions needed in handling emergency situations in power plants and substations. The problem is further complicated by a shortage of suitable trainees, especially for jobs where women and minors cannot be used because of physical limitations or hazards. Furthermore, electric systems must compete for new employees with other industries offering shorter training periods and higher pay.

Progress Continues

(*Continued from page* 38)

Acknowledgment of assistance is also made to the members of the EEI Statistical Committee, the Sub-Committee of the Advisory Committee to the Bureau of the Budget on Government Questionnaires to Public Utilities Relating to Financial and Accounting Matters, under the chairmanship of W. T. Neel, Philadelphia Electric Company, and for individual assistance rendered by Messrs. H. D. Borger, Peoples Natural Gas Company; A. A. Culman, Columbia Gas & Electric Corporation, and J. T. Dieter, Columbia Engineering Corporation.

Radio Noise from Fluorescent Lamps

By C. S. Young
Pennsylvania Power & Light Co.

THE introduction of the fluorescent lamp has brought with it the problem of radio noise which is produced by the rapid interruption of the a-c arc within the tube. This characteristic is inherent in this form of illuminant, although the magnitude of radio noise will vary with different lamp types and ratings. As long as fluorescent lighting is confined to stores in the business area and to factories or other locations, where radio receivers are not ordinarily used, radio noise may not be a problem. However, with the extension of this form of lighting to the home and to small business places in residential districts, the question of radio noise assumes considerable importance.

The extent to which fluorescent lamps disturb radio reception is dependent upon a number of factors, among which are the strength of the desired signal and the type of receiver antenna. The strength of the signal depends upon the transmitter power of the station being received and the distance between the station transmitter and receiver. Obviously, the stronger the station signal, the less objectionable a given radio noise becomes.

Radio disturbances from fluorescent lamps reach radio receivers by (1) direct radiation, (2) by radiation from connecting supply lines, and (3) by conduction along supply lines. Unless the conventional radio receiver antenna or lead-in is located within a few feet of the lamp, direct radiation is not serious, although radio receivers using internal loops may require greater separation from the lamp fixture. Usually the radiation from and conduction along supply lines are the most important factors. In order to minimize the effects produced by these forms of radio noise propagation, filters must be installed at the lamp terminals.

Some manufacturers incorporate a small capacitor in the starting mechanism of their units. When properly located in the circuit, this capacitor reduces radio noise to some extent. In a great many instances, however, additional measures must be taken to suppress radio noise. Filters are available commercially for this purpose, one type being termed a "Capacitive type filter," which is the simplest and most inexpensive type. There are cases, however, where this type of filter does not give sufficient reduction in radio noise, so that a combined capacitive and inductive filter must be used to attain the maximum degree of suppression.

In general, it will be necessary to filter each lamp or group of lamps in one fixture, since it is essential that the filter be located directly at the fixture terminals. In making a filter installation, it will be noted that one terminal or lead is to be connected to ground. Ground in this case means primarily the metal frame of the lamp fixture and not a water pipe or other actual ground. If in addition to the so-called ground connection to the metal fixture, an actual ground connection is desired, this may be made provided the "ground" terminal of the filter is connected to the metal fixture with a very short lead.

In the case of small table or desk type lamps, there may not be sufficient room in the base to install a commercial filter. In such cases small short path tubular capacitors, installed in the base in accordance with the diagram shown in Fig. 1, will usually provide ample suppression.* Capacitors suitable for this purpose are readily available at radio parts stores. The capacitor should be of reliable manufacture and have a 600 v d-c continuous rating. Such installations should be made only by competent persons.

In Tables 1 and 2 some test data are given, showing the reduction in radio noise for a 15-watt desk type lamp, with and without a filter. Direct radiation with variation in distance from the lamp and radio noise fed into the supply line are indicated.

* Where the lamp fixture is ungrounded and within reach the capacitance from line to fixture should not exceed .007 μf.

TABLE 1

Direct Radiation at 1000 kc

Distance in Ft. between Antenna and Lamp	*Radio Noise Microvolts per Meter*	
	Unfiltered	*Filtered*
1	2,000	85
2	800	30
3	400	14
4	200	—
5	100	—
6	40	—
7	20	—

TABLE 2

**Microvolts of Noise on Supply Line at 1000 kc*

Unfiltered	390
Filtered	19

* Measured in accordance with EEI Publication C9. A report of the Joint Coordination Committee on Radio Reception of EEI, NEMA and RMA.

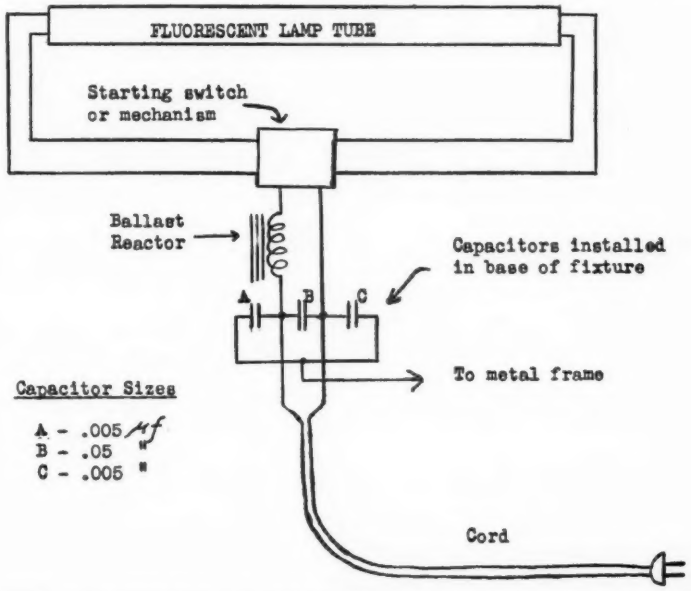


Fig. 1—Filter arrangement for suppressing radio noise in small fluorescent lamp fixtures.

West Penn Power Receives National Security Award

THE United States Office of Civilian Defense has awarded West Penn Power Company the National Security Award in recognition of the superior protective and restorative measures maintained by the Company against sabotage and attack. West Penn, it was stated, is the first electric company in the country to be cited for the Award.

The Award was presented by Lt. Col. John B. Warden, Regional Security Officer, Third Civilian Defense Region at a luncheon in the William Penn Hotel, Pittsburgh, January 20, with the ceremonies broadcast over a 7-station network. The award was accepted for West Penn by Harrison D. Panton, Commanding Officer of Company Guards.

"There are no production awards for electric utilities such as the Army-Navy 'E' which many of the war plants in this area have so deservedly earned," Harry L. Mitchell, President, said, "hence West Penn feels honored to receive this National Security Award. It recognizes the protective steps taken by our employees to safeguard our generating stations, substations and mines to help insure an uninterrupted supply of electricity for both war production and civilian uses.

"In achieving the standards of security which the OCD has termed 'superior,' West Penn has enjoyed the close cooperation of many municipal authorities, police chiefs, fire chiefs, State Police and local Civilian Defense officials," Mr. Mitchell added.

Winning the National Security Award carries with it the right to fly the NSA pennant at appropriate locations. The flags were presented by Raymond F. Riegelmeier, Plant Protection Officer, Pennsylvania State Council of Defense, and were received by John F. McArdle for Springdale Power Station; Matthew B. Seaton for Connellsville Power Station; William E. Smith for Ridgway Power Station; John D. Hare for Lake Lynn Power Station; Linne C. Bochman for Springdale Mine; Wayland B. Smith for Beech Bottom Mine; Wendell L. Moore for the Substations; Fred O. Darst for Connellsville Storeroom and Laboratory and Harry R. Stanley for Pittsburgh Office.

Employees responsible for the Company's security measures will receive NSA lapel emblems.

In presenting the National Security Award to West Penn Power Company, Col. John B. Warden, Regional Security Officer, Third Civilian Defense Region, hands the Award certificate to Harrison D. Panton, Commanding Officer of the Company's guards Looking on is Col. Lucius McK. Crumrine, left, Commanding Officer, District No. 4, Third Service Command, who later presented the NSA lapel insignia to 40-year veteran William W. Deighmiller, right, representing the 1686 West Penn employees engaged in security work.

Programs for Winter Meetings of Engineering Committees

The winter meetings of four engineering committees of the Institute are scheduled to be held in February. The Prime Movers Committee will meet at the Copley Plaza Hotel, Boston, on Feb. 7 and 8, and the Accident Prevention Committee at the William Penn Hotel, Pittsburgh, Feb. 11 and 12. The Electrical Equipment Committee and the Transmission and Distribution Committee will both meet at the Netherland Plaza Hotel, Cincinnati, on Feb. 14 and 15.

At the Cincinnati meetings the Electrical Equipment and the Transmission and Distribution Committees will hold a joint session for discussion of preferred voltage ratings, as well as a joint luncheon meeting at which S. M. Dean, Chief Engineer, Detroit Edison Co., will speak on "Settling Pre-War Problems for Post-War Use." At one session the AEIC Cable Engineering Section will join with the T. and D. Committee in considering future possibilities in cable construction for distribution voltages.

Corrosion Engineers Association to Hold Meeting

A GROUP has recently been organized as the National Association of Corrosion Engineers and all persons engaged in corrosion work are invited to apply for membership. Inquiries should be directed to Mr. O. C. Mudd, acting secretary-treasurer, care of Shell Pipe Line Corporation, Box 2648, Houston 1, Texas. An annual conference is to be held April 10, 11 and 12, 1944, at the Rice Hotel, Houston, Texas, and all members or applicants for membership are invited to attend.

Safety Code for Jacks

A SAFETY code for jacks, sponsored by the Bureau of Yards and Docks, U. S. Navy Dept., and the A.S.M.E., and approved by the American Standards Association in August, 1943, has been published as American Standard Safety Code for Jacks—ASA B30.1. The new code applies to the construction and use of all portable manually operated jacks except those supplied with automobiles as part of their standard tool equipment.

The report is published by the A.S.M.E., 29 West 39th St., New York.

Programs—Engineering Committees Meetings

ACCIDENT PREVENTION COMMITTEE

H. O. SPRINKLE, *Chairman*

William Penn Hotel, Pittsburgh, Penna., February 11 and 12, 1944

FEB. 11—9:30 A.M.

Merit Awards .....G. J. RUOFF
a) Award for *more* than one million man-hour safety record
b) Award for *less* than one million man-hour safety record
c) Steps taken to avoid duplication of awards in *combination gas and electric companies*
Safe Practices for Metermen (Progress Report).....H. J. BURTON
Statistics .....E. J. KREH
a) Desirable Changes in Form and Method of Reporting
b) Minor Accidents and Effect on Frequency Rates
Linemen's Handbook (Progress Report).....E. C. RUE
Linemen's Cutout Accidents (Report).....H. H. BERMAN
Resuscitation Methods .....W. R. SMITH

FEB. 11—1:30 P.M.

Posters .....W. R. SMITH
Accident Analysis .....D. C. STEWART
a) Review of work done
b) Future program for accident analysis work. Should it be continued indefinitely and if so, what should be the types of analyses prepared?
Publicity .....W. T. ROGERS
Symposium on ways for individual companies to use Accident Analyses and EEI-Statistical Reports effectively in Accident Prevention work.

FEB. 12—9:00 A.M.

Rubber Protective Equipment.....R. GODWIN
National Electric Code.....ALEXANDER MAXWELL
The Fireman and Electrical Hazards (Progress Report) C. N. RAKESTRAW
Suggested Topics for Discussion by Committee or for Future Consideration

ELECTRICAL EQUIPMENT COMMITTEE

R. T. HENRY, *Chairman*

Hotel Netherland-Plaza, Cincinnati, Ohio, February 14 and 15, 1944

FEB. 14—9:30 A.M.

(CLOSED SESSION—Attendance limited to members and guests sponsored by members or the chairman)

Apparatus and Design Division

B. VAN NESS, JR., *Presiding*

Apparatus Troubles .....F. S. BROWN
Joint Committee—Oil Circuit Breaker Report...R. W. WILBRAHAM
Uniform Requirements for Metal Clad Switchgear.....E. B. SHEW

FEB. 14—2:00 P.M.

Joint Session with Transmission and Distribution Committee

Preferred Ratings for Nominal System Voltages.....H. P. SEELYE
Approach to Post-War System Planning in Philadelphia L. R. GATY
Radio Trouble Dispatching.....L. R. GATY

FEB. 15—9:30 A.M.

OPEN SESSION

Apparatus and Design Division

B. VAN NESS, JR., *Presiding*

Standardization of Turbo-Generator Design.....M. S. OLDACRE
Report of Activities of Joint AIEE-ASME Committee

System Engineering Division

H. A. DRYAR, *Presiding*

System Generating Capacity Reserves.....C. W. MAYOTT

FEB. 15—12:30 P.M.

Luncheon Meeting

Address—S. M. DEAN, Chief Engineer, Detroit Edison Co.
"Settling Pre-War Problems for Post-War Use"

FEB. 15—2:00 P.M.

OPEN SESSION

Apparatus and Design Division

B. VAN NESS, JR., *Presiding*

Station Design .....H. B. WOOD
a) Chesterfield Power Station.....FRANK SPIES
b) Power Supply to the Big Inch Pipeline.....W. H. STUEVE

TRANSMISSION AND DISTRIBUTION COMMITTEE

FRANK SANFORD, *Chairman*

Netherland-Plaza Hotel, Cincinnati, Ohio, February 14 and 15, 1944

FEB. 14—9:30 A.M.

Standards and Specifications

T. J. BROSNAN, *Presiding*

Acceptance and Revision of Specifications.....T. J. BROSNAN
Street Lighting Standards.....O. K. CORNELL
Distribution Fuse Situation.....Discussion
T. and D. Organization for the Jobs on Hand.....FRANK SANFORD

FEB. 14—2:00 P.M.

Joint Meeting with Electrical Equipment Committee

FRANK SANFORD and R. T. HENRY, *Presiding*

Preferred Voltage Ratings—Present status reviewed by Acting Chairman E.E.I. Group, Joint Committee....HOWARD SEELYE
General Discussion of Voltage Ratings
Approach to Post-War System Planning in Philadelphia. L. R. GATY
Radio Trouble Dispatching.....L. R. GATY

FEB. 15—9:30 A.M.

Overhead Subjects

W. E. GUNDLACH, *Presiding*

Distribution Transformer Protection Problems.....J. B. HODTUM
Post-War Rural Electrification.....C. H. LEATHAM
Operating Experience with Rural Lines....Round Table Discussion

FEB. 15—12:30 P.M.

Luncheon Meeting

Address—S. M. DEAN, Chief Engineer, Detroit Edison Co.
"Settling Pre-War Problems for Post-War Use"

FEB.15—2:00 P.M.

Underground Systems

ANDREW BODICKY, *Presiding*

Future Trends in Cables for Distribution Voltages..G. B. SHANKLIN
Studies of Earth Ambient Temperatures.....T. G. HIERONYMUS
Subjects for Discussion:
Sheath cracks on gas-filled cables
Burns from handling fibre conduit
A C Network Operations—A. BODICKY
Cable Operation Progress Report—C. M. MOSHER
A cable lubricant as corrosion inhibitor for lead sheath—GEORGE LINEBACK

FEB. 16—9:30 A.M.

A.E.I.C. CABLE ENGINEERING SECTION

(Members of Transmission and Distribution Committee Invited)

Simplified Practice Schedule for Solid Type Cables
Experience with Cables Operating Under War-Time Loading
Substitutes for Rubber Insulation

PERSONALS

HORACE P. LIVERSIDGE, president of the Philadelphia Electric Company, has been awarded an honorary degree of Doctor of Science in Commerce by the Drexel Institute of Technology.

Mr. Liversidge's citation for the degree read, in part:

"A graduate of Drexel Institute in the Class of 1897, he entered the service of the Edison Electrical Company, which subsequently became part of the Philadelphia Electric Company and the nucleus of a large network for power generation and transmission in eastern Pennsylvania and New Jersey. By steadfast devotion to the highest ideals of the engineering profession he rose from the position of inspector, through all ranks of operating management to the positions of Superintendent of Electric Plant, Operating Engineer, Vice-President and General Manager, and finally President of the Company. To his talents as an electrical engineer he adds in notable measure those of business administrator, in recognition of which he has been called to high positions in the directorship, not only of numerous public utility enterprises, but also of business organizations in various other fields.

"He stands forth a distinguished example of the contribution so often made by the engineering profession to that company of enlightened administrators of the electric power industry, who have brought the benefits of electric power within reach of people in all walks of American life and who have given our country the undisputed leadership among the nations of the world in the generation and distribution of electric power.

"His technical achievements as an engineer, including many notable improvements in the equipment of generating and substations have been supplemented by outstanding contributions to the promotion of cordial relations with the consuming public and with his co-workers, whose respect for him and loyalty to him constitute an impressive tribute to his genius for leadership.

"His public spirit is abundantly attested by his active interest in those civic, philanthropic, and educational enterprises which are designed to raise the standard of living and to promote the happiness of his fellowmen; in particular, the Drexel Institute of Technology is the richer by virtue of his valued membership on its Board of Trustees."

Retirement of MISS SARAH M. SHERIDAN, vice-president of The Detroit Edison Company and for many years its sales manager, has been announced by Alfred C. Marshall, president. While Miss Sheridan will not formally retire until March, 1944, she will, at the beginning of the year, turn over her duties and responsibilities to the organization she has built. ANGUS D. MCLAY is now responsible for the sales department, having been appointed sales manager in 1938 and elected a vice-president in September, 1943. ROY T. DUNCAN is commercial superintendent of the sales department.

"Detroit, Miss Sheridan and The Detroit Edison Company all grew together," said Mr. Marshall, in commenting on Miss Sheridan's retirement. "I have worked closely with Miss Sheridan for many years and know her first as a fine and gracious gentlewoman and secondly as a business woman, outstanding in the city and our whole industry in the technique of handling people and gaining their respect and cooperation. Miss Sheridan is largely responsible for the public respect and trust that this company has gained for itself, not only in our service area but in the industry.

"Miss Sheridan's strong belief more than 20 years ago that farmers, as well as city people, needed and should have electric service, drove us to new engineering adventures in farm-line construction and supply. Her insistence on continuous service, easy lamp renewals, fuse service and low rates are all taken for granted today but were bold pioneer steps 40 years ago when Miss Sheridan was first responsible for the company dealings with customers," Mr. Marshall recalled.

WILLIAM M. HICKEY, GEORGE L. BURR and THOMAS N. MCCARTER, JR., have been elected directors of Public Service Corporation of New Jersey, increasing the membership of the Board from twelve to fifteen.

A graduate of Harvard Engineering School in 1927, Mr. Hickey has been associated with Stone and Webster and with the Central Hanover Bank in New York where he was in charge of utility investments. He was with the Securities and Exchange Commission in 1934, 1935 and 1936. From 1937 to 1943 he was a partner in Gilman & Hickey, consulting engineers. Mr. Hickey was elected President of The United Corporation in April, 1943.

Mr. Burr besides being a director of The United Corporation is also a director of the Texas & Pacific Railroad Company, the Detroit Edison Company, the Canada Dry Ginger Ale, Incorporated, and the Associated Dry Goods Company.

Thomas N. McCarter, Jr., has been Vice-President in charge of Southern Division, Public Service, since 1939 and a director of the subsidiary companies of Public Service Corporation of New Jersey since April, 1941. Prior to coming to Public Service, Mr. McCarter had been a Vice-President and director of the Northern New York Utilities, Inc., and president and director of the Antwerp Light & Power Company, both subsidiaries of the Niagara Hudson Power Company of New York.

HENRY E. CHAMBLISS has been named manager of the Great Falls division of the Montana Power Co., succeeding the late Clinton T. Booker.

Six recent changes in management personnel of the Pacific Gas & Electric Co. have been announced by A. EMORY WISHON, vice-president and general manager. Effective January 1, W. G. B. EULER became vice-president in charge of operations, I. C. STEELE chief engineer and WALTER DRYER chief of the division of civil engineering. New appointments in the legal staff of the company made THOMAS J. STRAUB general counsel, R. H. GERDES assistant general counsel and W. B. BOSLEY special counsel.

Mr. Euler entered the employ of the Great Western Power Co. in May, 1910, having previously worked for the General Electric Co. In 1912 he was made superintendent of operations of Great Western. In 1922 he became director of operations and general superintendent and, in 1924, general superintendent. He went over to P. G. & E. in 1930, when that company took over Great Western and was made general superintendent of the San Francisco and East Bay divisions, handling physical operations of both gas and electric departments. In 1940 he became chief engineer for P. G. & E.

Mr. Steele is a University of California graduate in civil engineering and went to work for P. G. & E. in 1909, on a dam construction job. From 1910 to 1916 he was engaged in a variety of engineering activities for the company, working his way up from foreman of construction to assistant civil engineer. He was a civil engineer in the company's main office from 1917 to 1921, since which time he has held the office of chief of the division of civil engineering.

A. C. INMAN has been named vice-president of the Idaho Power Co. and

will continue his duties as secretary and director. J. H. ROGERS succeeds the late Robert W. Miller as treasurer of the company. Mr. Rogers has been comptroller since 1940 and will continue in that office. E. A. ANDERSEN has been appointed assistant secretary.

DORSEY R. SMITH, manager of merchandising and domestic gas and electric sales of the Consolidated Gas, Electric Light and Power Company of Baltimore, has retired after 40 years of service. He will be succeeded by Chester S. Stackpole, who has been assistant manager since 1928.

L. B. FULLER, Utah Power & Light Co. chief engineer and for 38 years prominently identified with the intermountain area electrical industry, will serve as engineering consultant for the company and T. A. PURTON has been named chief engineer to succeed him.

A resident of Utah and Idaho from 1912 to 1937, Mr. Purton has more recently served as an engineer for Ebasco Services, Inc., New York. He was born in the state of Kansas and was graduated from the University of Kansas. From 1912 to 1917 he was assistant engineer for the Union Pacific Railroad Co., in both Salt Lake City, Utah, and Pocatello, Idaho. For three years he was employed by the General Electric Co. in Salt Lake City as an assistant engineer. In 1920 Mr. Purton moved to Boise, where he served as office engineer for the Idaho Power Co. until 1937, when he transferred his interests to New York.

A native of Ohio, Mr. Fuller went West in 1906 and became identified with the Telluride Power Co., a predecessor of Utah Power & Light Co., some three months after his graduation from Cornell University and has been associated with every major electrical development in that area since that time.

He superintended construction of practically every major hydro-electric and steam-electric generating station which now makes up the Utah Power & Light Co. system in Utah and Idaho, and in 1927 was made assistant superintendent of power for the company. Two years later Mr. Fuller became superintendent of power and in 1937 took over the duties of chief engineer.

GLENN C. KILEY, vice-president Oklahoma Gas & Electric Co., has been named an industry member of the Eighth Regional War Labor Board, representing Oklahoma, Texas and Louisiana. For the past year Mr. Kiley has served as a tripartite panel member, analyzing dispute cases before presentation to the Regional Board.

W. P. SHAFFER has been appointed district manager of the Southern California Edison Co. at Pasadena, succeeding C. M. Campbell, who will be Santa Monica district manager.

E. J. ARCHBOLD, electrical engineer with the Georgia Power Co., in Atlanta, has been appointed general design engineer to fill the vacancy caused by the recent death of William S. Beckett. Mr. Archbold has been with the company since 1927.

FRANK S. KEELER, Alabama Power Co., has been promoted from division superintendent to Mobile district manager and assistant to the Mobile division vice-president, and EARL A. BENSON from assistant superintendent to superintendent of the Mobile division. J. T. NOLEN, JR., formerly Gadsden district superintendent, has been advanced to the position of southern division superintendent and M. A. LAMB from Gadsden district engineer to Gadsden district superintendent.

J. ALBERT KEENE, formerly connected with the Public Service Electric & Gas Co., Newark, N. J., has joined the Alabama Power Co. as assistant superintendent of production. Mr. Keene had been identified with the New Jersey utility since 1927.

PHIL H. PALMER, for many years in charge of operations of the Public Service Co. of Indiana in the Kokomo division, has retired. L. J. EVANS, formerly district manager at Wabash, has been selected to succeed him. In approving the retirement of Mr. Palmer the board of directors took cognizance of his 40-year record of "faithful and efficient services, and effective contribution to the development and expansion of the operations in the Kokomo area . . ." A native of Iowa, Mr. Palmer entered the Indiana public utility field in 1904 as superintendent of light and power for the old Kokomo, Marion & Western Traction Co. After that company was merged into the Indiana Railway & Light Co., he became superintendent and later general manager, in which position he was serving when the Northern Indiana Power Co. was organized. In 1923 he became vice-president of the Northern Indiana utility and through the ensuing operational plans of 20 years was always either in that position or the position of division manager for the Kokomo division. Mr. Evans joined the company as a salesman at Wabash at the age of 28. Subsequently he was transferred to Columbus and then to Kokomo. In 1936 he took over as district manager of Wabash on the retirement of Mr. Klare. During the past six months Mr. Evans has been at division headquarters as assistant to Mr. Palmer.

E.E.I. Accident Prevention Committee Member Is Co-Author of New Book

Applied Safety Engineering—by H. H. Berman, Safety Engineer, Consolidated Gas, Electric Light & Power Company of Baltimore, and H. W. McCrone, Field Engineer, Baltimore Safety Council. McGraw-Hill, 186 pages, 5¼ x 8¼, $2.00.

THIS book is a pioneering adaptation of the case study method applied to Safety Engineering. Mr. Berman, co-author, is a member of the Accident Prevention Committee of the EEI. The book is written in straightforward, understandable language, and outlines many practicable aids for the modern safety engineer including such topics as:

—How to write safety rules and regulations
—How to prepare safety messages
—How to conduct safety conferences
—How to make a safety talk
—How to make a safety inspection
—How to make investigations
—Specimen investigation reports on cases

In *Applied Safety Engineering* each case is analyzed and carried through various successive stages to discover the corrective measures needed to prevent recurrence of similar accidents or near-accidents. Detailed "answers" are developed for each case handled through the different stages of study.

This book was planned and written specifically for a second course in industrial safety to be offered this winter under the joint sponsorship of E.S.M.W.T. and the United States Department of Labor. The course outline prepared by the Office of Education follows almost exactly the table of contents.

While not a magic cure-all for the many problems that beset the Safety Engineer, its many practical suggestions for successful safety work should prove immeasurably helpful to earnest and energetic safety men throughout the industry.

Flood Causes and Control

(*Continued from page 50*)

to the lower reaches of the river. Seepage, impounding in low places, and evaporation greatly lessen the run-off. The reduction of excess flood water from seepage is very considerable and retains the water in the ground. The reduction from evaporation over wide areas is also in important quantity. Evaporation will often amount to more than 1 in. of water per week. This overflow land acts as a safety area to the land below and if flood damage were paid to the owners it would probably be less expensive than to build levees. The owners would, of course, have the same use of the land they now have and would not be injured in any way.

As for irrigation, it does seem that irrigation areas should not be financed as part of a flood control program. Insofar as they take surplus water they can be helpful to flood control on the other hand, since many cities utilize the Missouri River for both their water supply and means of drainage. Such irrigation projects might at times reduce the flow of the stream below safe limits. The big Fort Peck dam, if its power producing function is eliminated, would probably have sufficient capacity to impound the excess waters from the melting of the snow in the spring and parcel this excess out during the summer for some irrigation and also protect the necessary safe minimum flow in the river during the late fall and winter. In the next spring it could be refilled to again repeat the cycle.

Utility-Dealer Relationships

(*Continued from page 52*)

dow of the utility company. How often will you give the electric kitchen and laundry the spotlight in your future plans?

4. You have a stake in the construction market. Be watchful of the development of Prefabrication. Built-in bathroom and kitchen assemblies may lead to a substantial amount of built-in furniture. The utilities anticipate national and local coordination with the construction industry. Wiring adequacy in this type of house in particular will have a direct bearing on the electrical equipment the retailer may sell.

5. And what part will you take in the tie-in with national and local campaigns? If your local utility has not followed the practice of notifying you, why not make a request for such action, especially during the period of intensive advertising and selling of certain classes of items so that you may cash in on mass promotional effort?

6. Are you interested in the maintenance of equipment which you sell? Why not some arrangement to encourage electrical consumers dropping in for service? It is one way of winning back customers whom you have not seen for a long time. Often arrangements can be made with the service store around the corner to handle the service if you are not equipped to do so. More store traffic results in more sales.

7. Finally, the objective of furniture dealers is to improve the American home through the sale of more comfortable and attractive furnishings. Why not complete the picture by participation in the promotion of the efficiency of electrical living?

CONVENTIONS AND MEETINGS

FEBRUARY

3-4	Sales Executive Conference, Netherland Plaza Hotel, Cincinnati, O.
7-8	Prime Movers Committee, EEI, Copley Plaza Hotel, Boston, Mass.
11-12	Accident Prevention Committee, EEI, William Penn Hotel, Pittsburgh, Pa.
14-15	Electrical Equipment Committee, EEI, Netherland Plaza Hotel, Cincinnati, Ohio
14-15	Transmission and Distribution Committee, EEI, Netherland Plaza Hotel, Cincinnati, Ohio

MARCH

9	Council of Electric Operating Companies, Palmer House, Chicago, Ill.
26-28	North Central Electrical Industries, St. Paul Hotel, St. Paul, Minn.

APRIL

3-5	American Society of Mechanical Engineers, Spring Meeting, Birmingham, Ala.
3-5	Eleventh Annual Commercial Meetings, EEI, Edgewater Beach Hotel, Chicago, Ill.
19-20	Missouri Association of Public Utilities, Annual Business Meeting, Jefferson Hotel, St. Louis, Mo.
23-27	National Electrical Manufacturers Association, Chicago, Ill.
26-27	Gas and Electric Industry Accounting Conference, Hotel Cleveland, Cleveland, Ohio.

MAY

1-4	Technical Committee meetings, EEI, Edgewater Beach Hotel, Chicago, Ill.
8-11	National Fire Protection Association, Chicago, Ill.

JUNE

6-7	Edison Electric Institute, Annual Conference, Waldorf-Astoria Hotel, New York, N. Y.
5-7	Public Utility Advertising Association, Chicago, Ill.
19-22	The American Society of Mechanical Engineers, Semi-Annual Meeting, Pittsburgh, Pa.
22-23	Canadian Electrical Association, Annual Meeting, Murray Bay, Que., Can.

EEI Publications

A catalog of all EEI publications is available upon request to

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420 Lexington Avenue, New York

Southern Safety Conference to Be Held at Atlanta

APPROXIMATELY 800 men and women interested in the fields of industrial and public safety are expected to attend the Sixth Southern Safety Conference to be held in Atlanta at the Biltmore Hotel, March 6 and 7. In addition, all other persons interested in safety activities will be welcome at the sessions.

Scheduled speakers and their topics include the following: Lieutenant Colonel L. B. Tipton, U. S. Department of Labor, Washington, "Accident Prevention Training in Industry"; J. F. Scott, safety director, Southern Natural Gas Company, Birmingham, "Formulation of Effective Safety Rules"; Dr. L. M. Petrie, director of the Georgia Industrial Hygiene Service, "Determining Health Hazards in Industrial Occupations."

A feature of the conference will be a traffic courts conference sponsored by the Georgia Bar Association. Panel discussions will deal with prevention of off-the-job accidents and fire prevention. Additional speakers, not yet announced, will discuss "How Top Management Can Initiate and Support Accident Prevention Programs," "Safety Must Be Sold," "Accident Prevention in War Plants" and "Construction Hazards Can be Minimized."

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